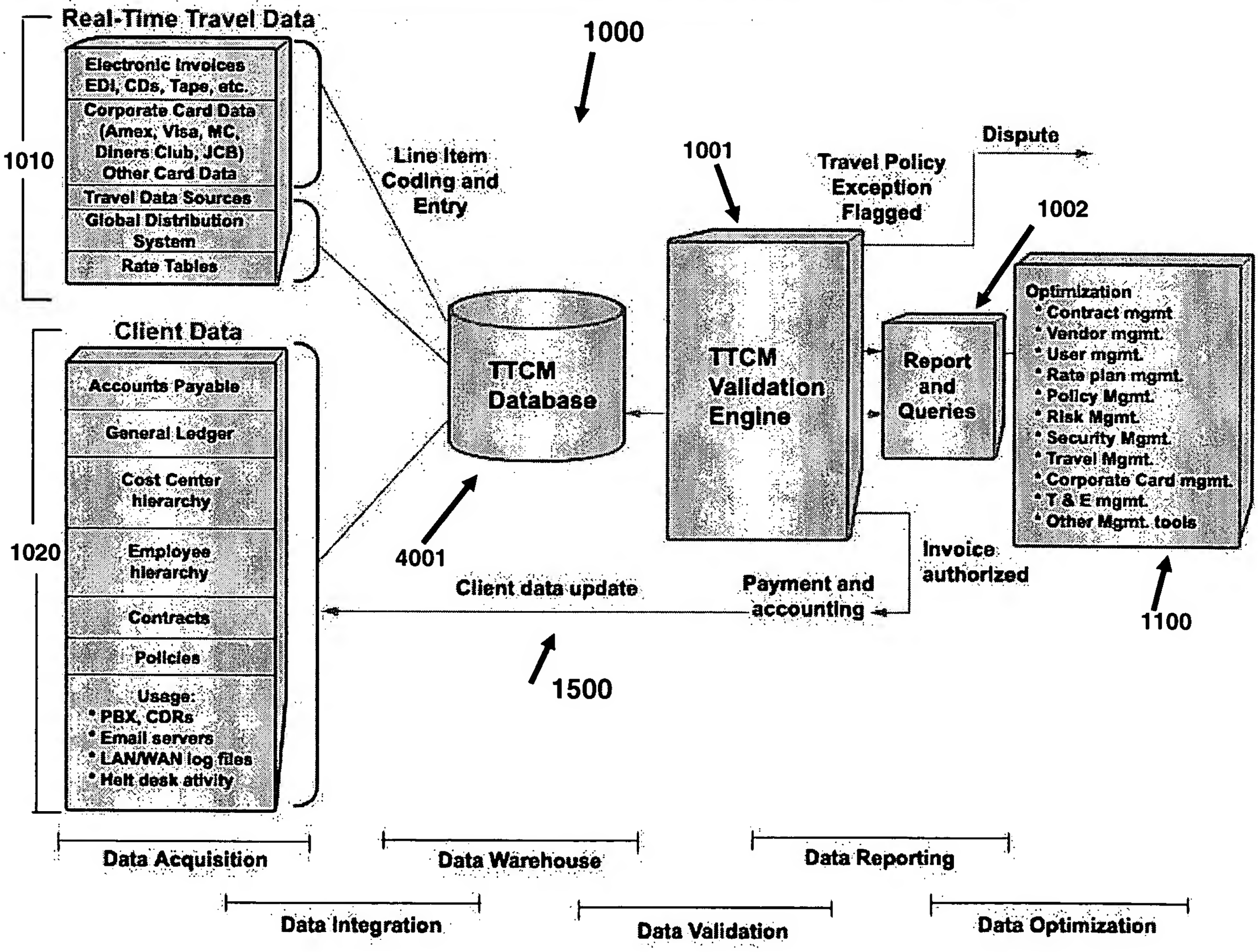
## Figure 1: How Total Travel Cost Management (TTCM) Works



## Figure2: Total Travel Cost Management (TTCM) Service Lifecycle

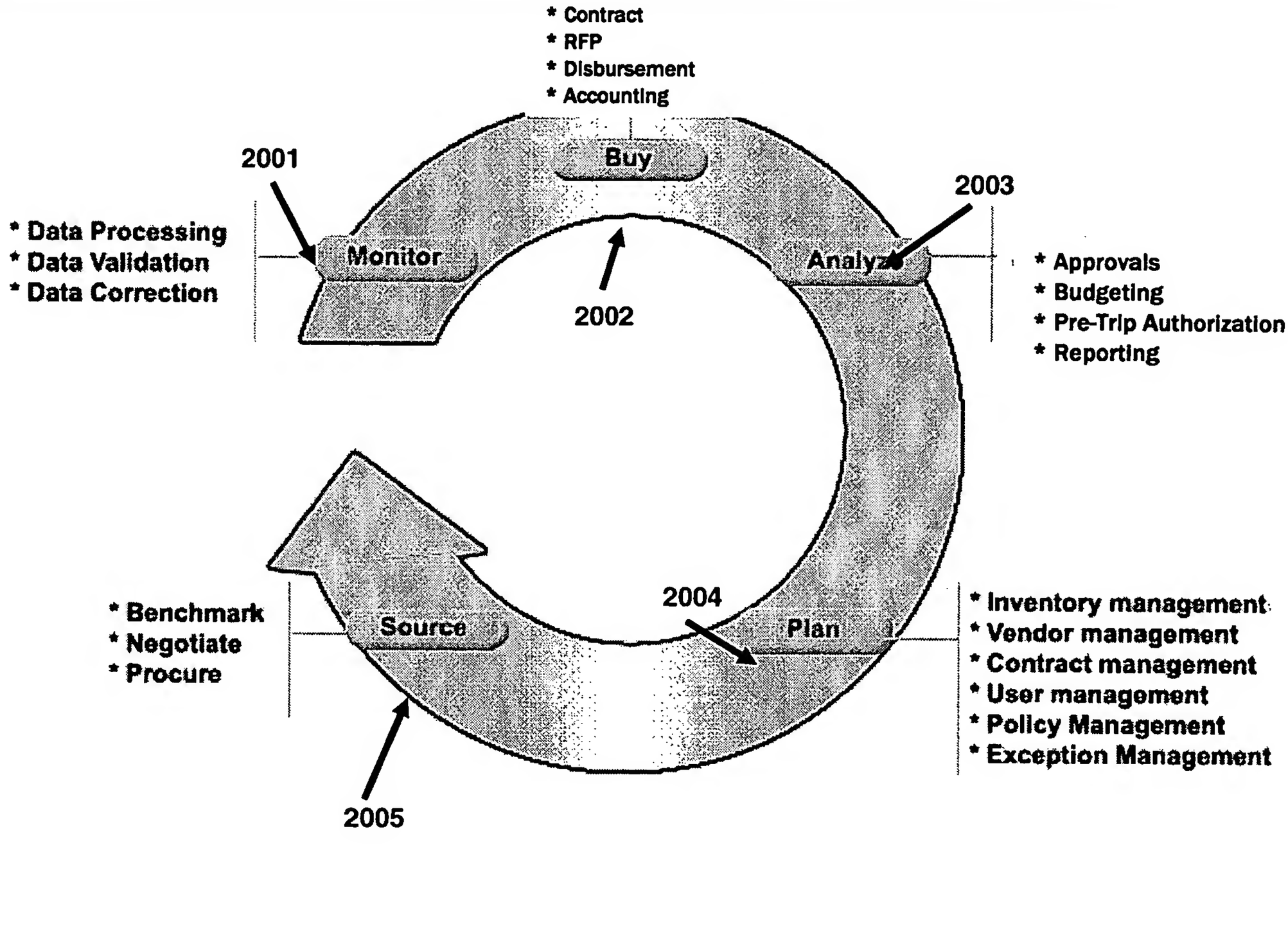
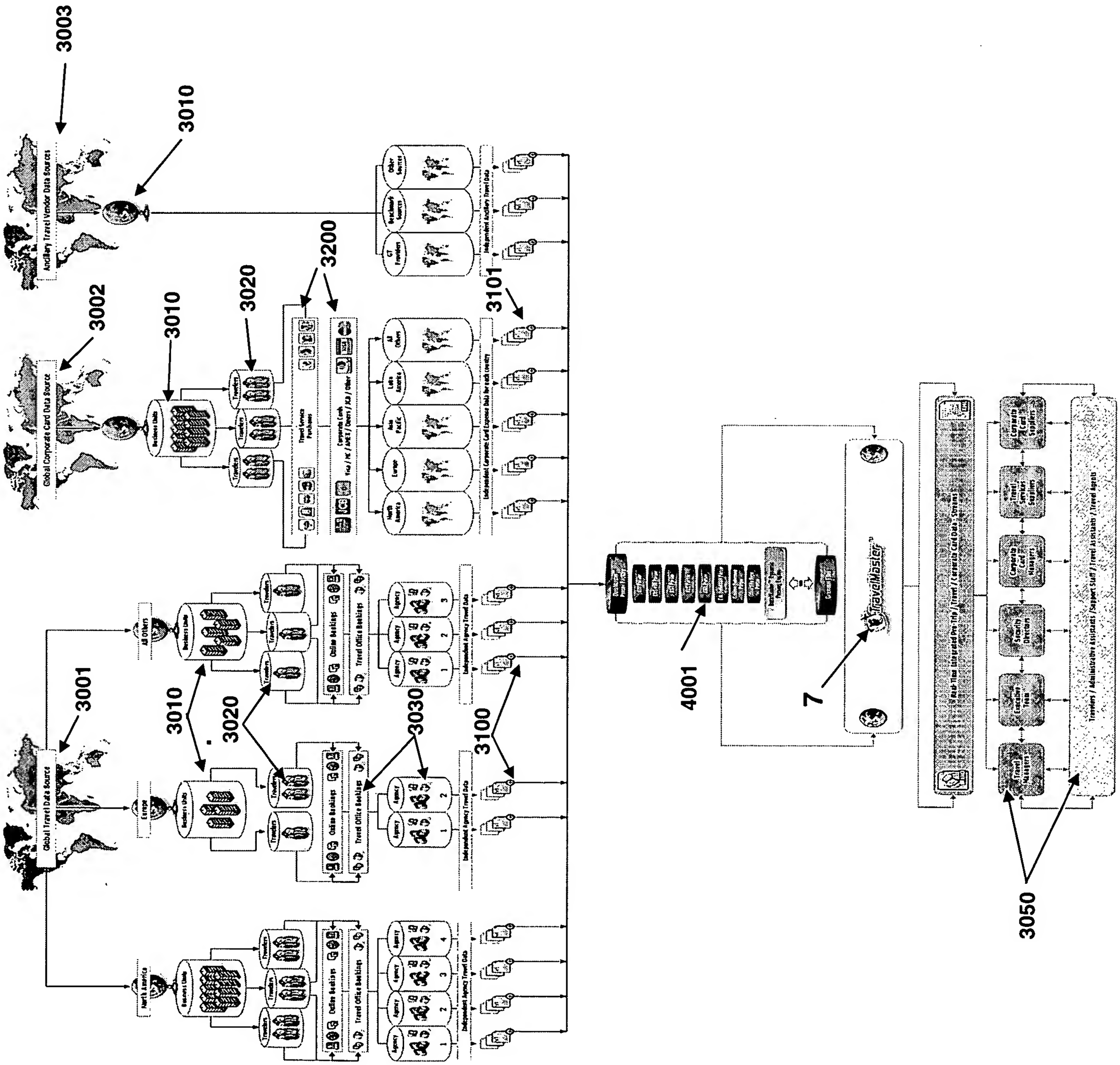
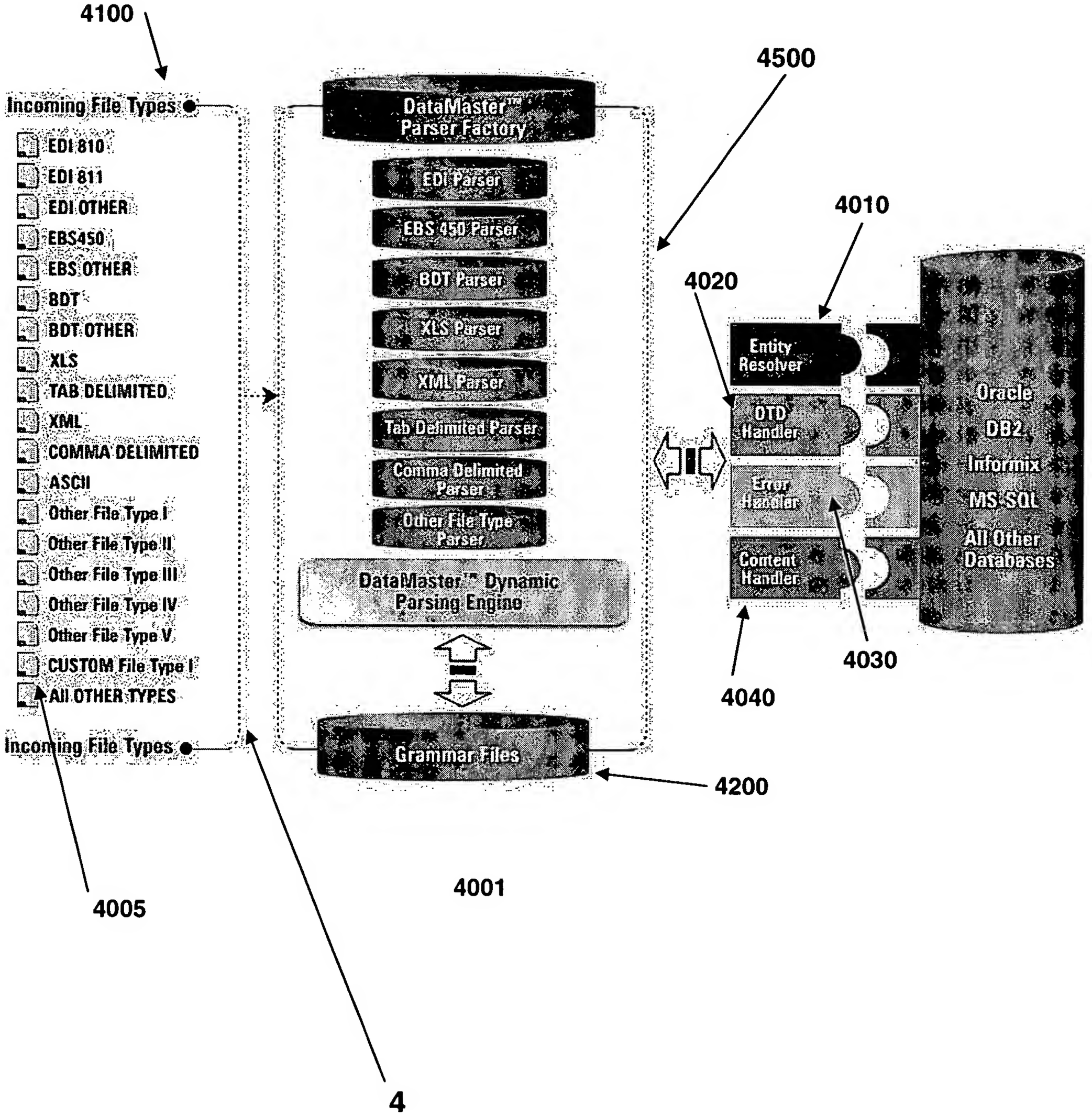


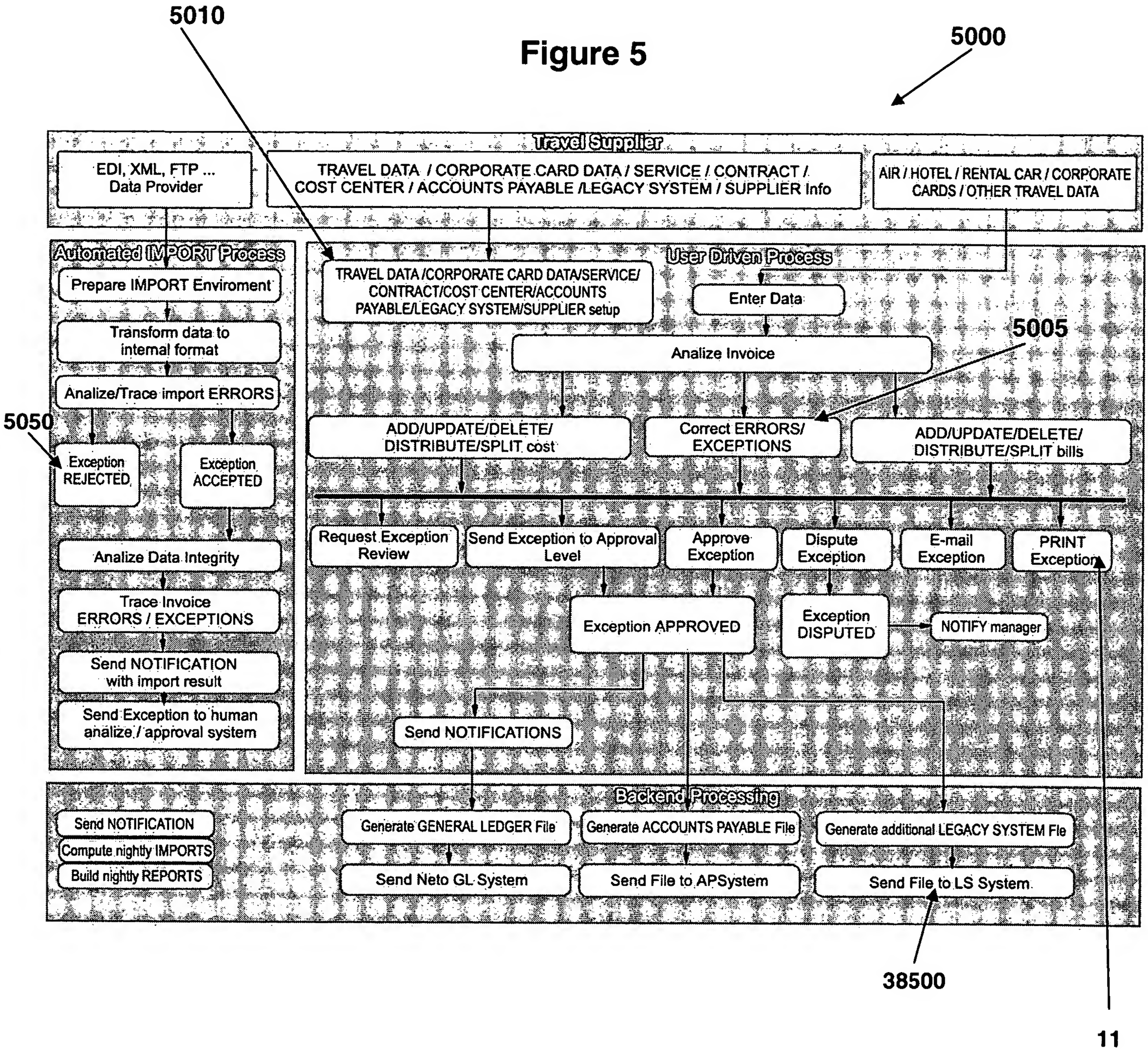
Figure 3


3003
3010
3002
3010
3020
3200
3101
3001
3010
3020
3030
3100
4001
7
3050
Global Corporate Card Data Source
Ancillary Travel Vendor Data Sources
Global Travel Data Source
North America
Europe
Asia Pacific
Latin America
All Others
Business Units
Travelers
Online Bookings
Travel Office Bookings
Agency
Independent Agency Travel Data
TravelMaster

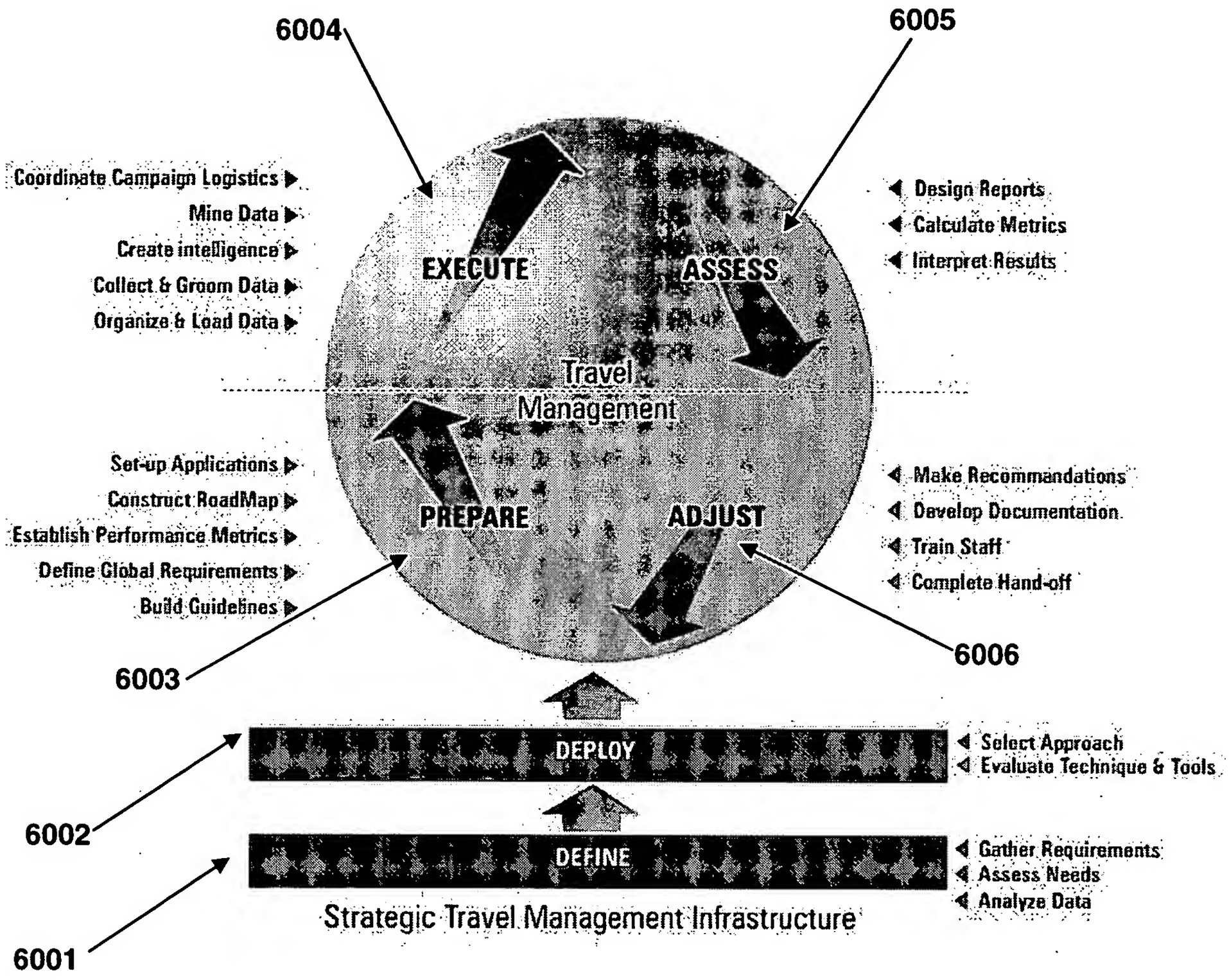
# Figure 4


4100
Incoming File Types
EDI 810
EDI 811
EDI OTHER
EBS450
EBS OTHER
BDT
BDT OTHER
XLS
TAB DELIMITED
XML
COMMA DELIMITED
ASCII
Other File Type I
Other File Type II
Other File Type III
Other File Type IV
Other File Type V
CUSTOM File Type I
All OTHER TYPES
Incoming File Types
4005
4500
DataMaster™ Parser Factory
EDI Parser
EBS 450 Parser
BDT Parser
XLS Parser
XML Parser
Tab Delimited Parser
Comma Delimited Parser
Other File Type Parser
DataMaster™ Dynamic Parsing Engine
Grammar Files
4200
4001
4010
4020
Entity Resolver
OTD Handler
Error Handler
Content Handler
Oracle
DB2
Informix
MS SQL
All Other Databases
4030
4040
4

# Figure 5

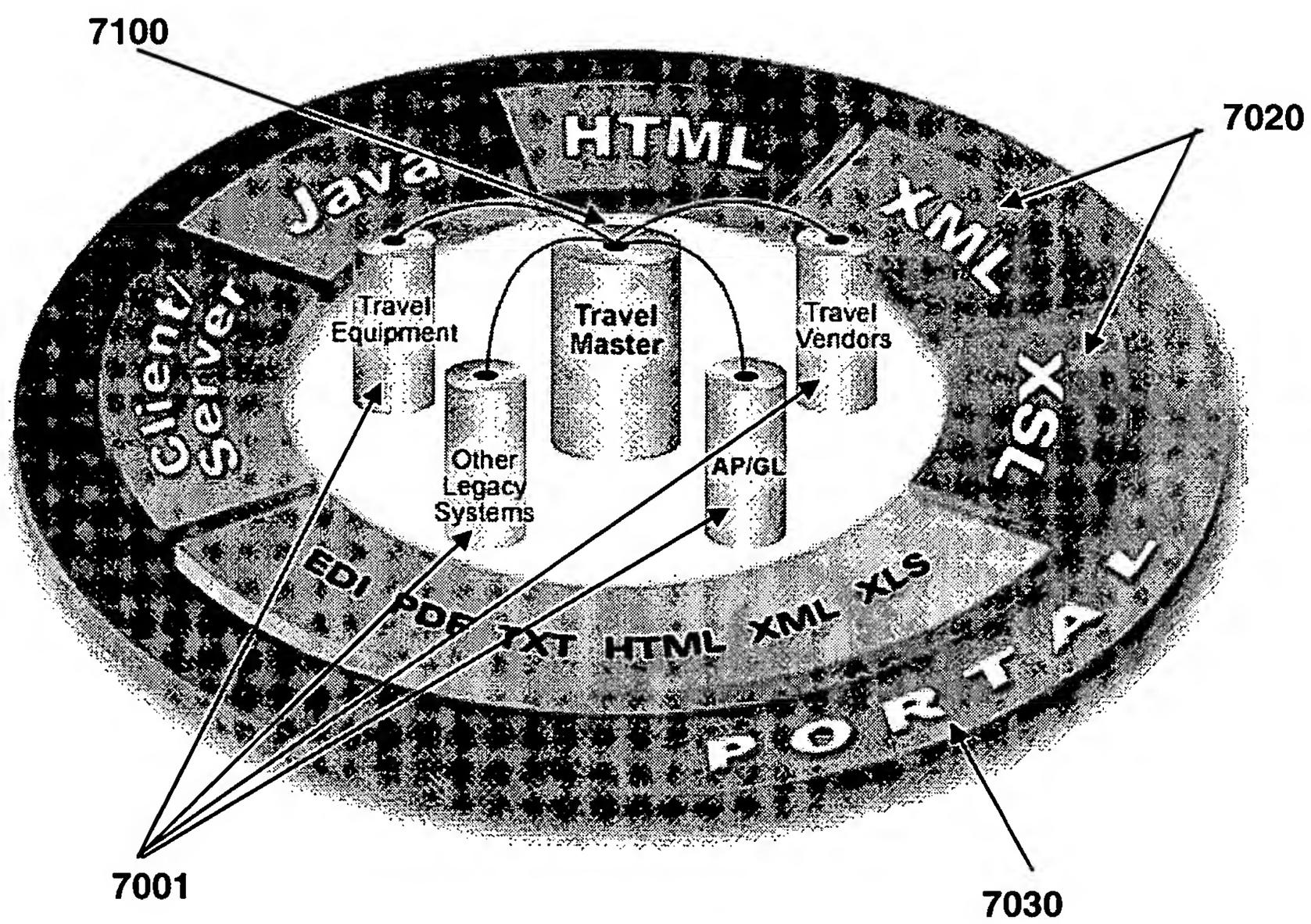

5010
5000
Travel Supplier
EDI, XML, FTP ...
Data Provider
TRAVEL DATA / CORPORATE CARD DATA / SERVICE / CONTRACT /
COST CENTER / ACCOUNTS PAYABLE /LEGACY SYSTEM / SUPPLIER Info
AIR / HOTEL / RENTAL CAR / CORPORATE
CARDS / OTHER TRAVEL DATA
Automated IMPORT Process
Prepare IMPORT Enviroment
Transform data to
internal format
Analize/Trace import ERRORS
5050
Exception
REJECTED
Exception
ACCEPTED
Analize Data Integrity
Trace Invoice
ERRORS / EXCEPTIONS
Send NOTIFICATION
with import result
Send Exception to human
analize / approval system
TRAVEL DATA /CORPORATE CARD DATA/SERVICE/
CONTRACT/COST CENTER/ACCOUNTS
PAYABLE/LEGACY SYSTEM/SUPPLIER setup
User Driven Process
Enter Data
5005
Analize Invoice
ADD/UPDATE/DELETE/
DISTRIBUTE/SPLIT cost
Correct ERRORS/
EXCEPTIONS
ADD/UPDATE/DELETE/
DISTRIBUTE/SPLIT bills
Request Exception
Review
Send Exception to Approval
Level
Approve
Exception
Dispute
Exception
E-mail
Exception
PRINT
Exception
Exception APPROVED
Exception
DISPUTED
NOTIFY manager
Send NOTIFICATIONS
Backend Processing
Send NOTIFICATION
Compute nightly IMPORTS
Build nightly REPORTS
Generate GENERAL LEDGER File
Generate ACCOUNTS PAYABLE File
Generate additional LEGACY SYSTEM File
Send Neto GL System
Send File to APSystem
Send File to LS System
38500
11

# Figure 6

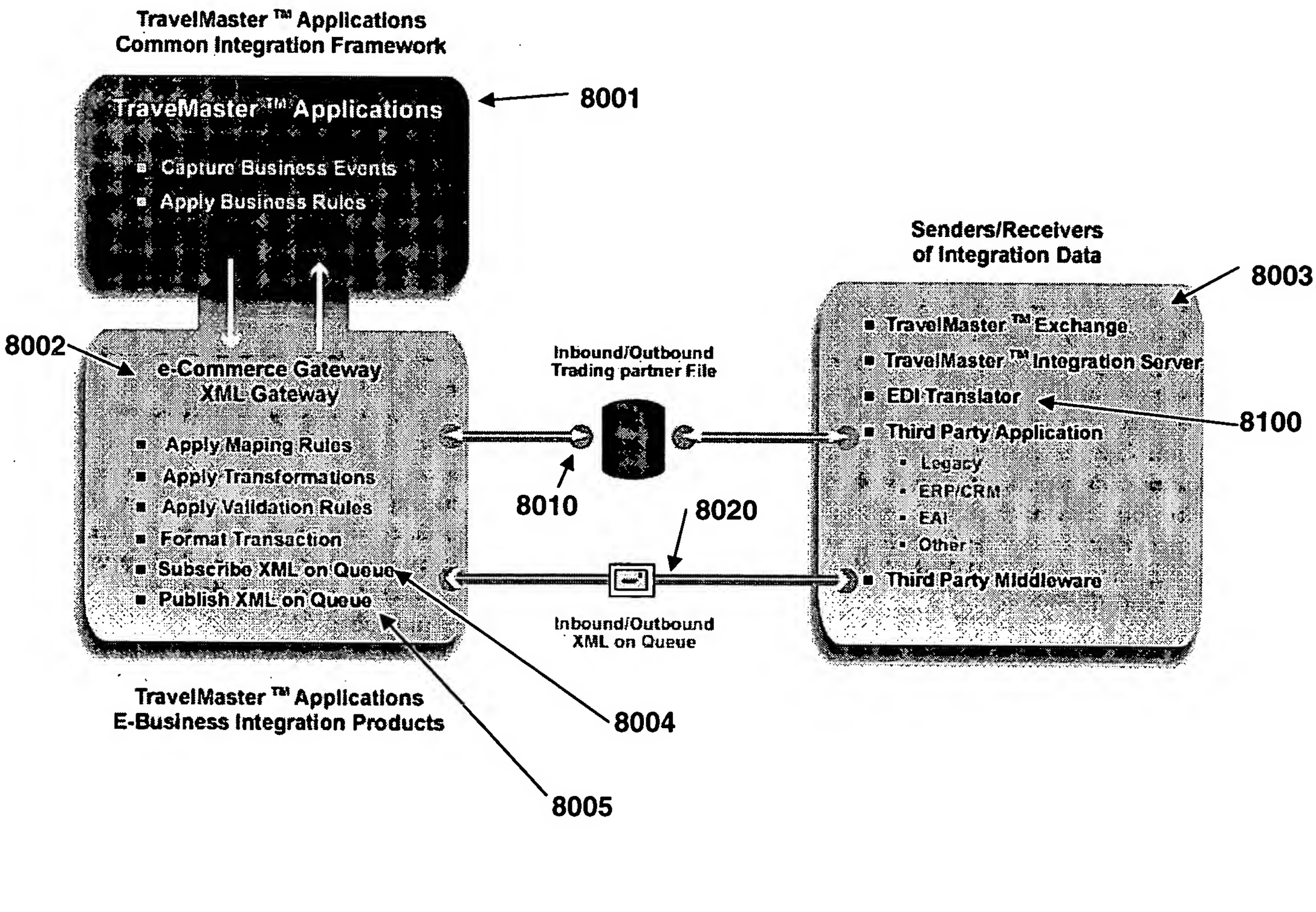

6004
6005
Coordinate Campaign Logistics
Mine Data
Create intelligence
Collect & Groom Data
Organize & Load Data
EXECUTE
ASSESS
Design Reports
Calculate Metrics
Interpret Results
Travel Management
Set-up Applications
Construct RoadMap
Establish Performance Metrics
Define Global Requirements
Build Guidelines
PREPARE
ADJUST
Make Recommendations
Develop Documentation
Train Staff
Complete Hand-off
6003
6006
DEPLOY
Select Approach
Evaluate Technique & Tools
6002
DEFINE
Gather Requirements
Assess Needs
Analyze Data
6001
Strategic Travel Management Infrastructure

# Figure 7

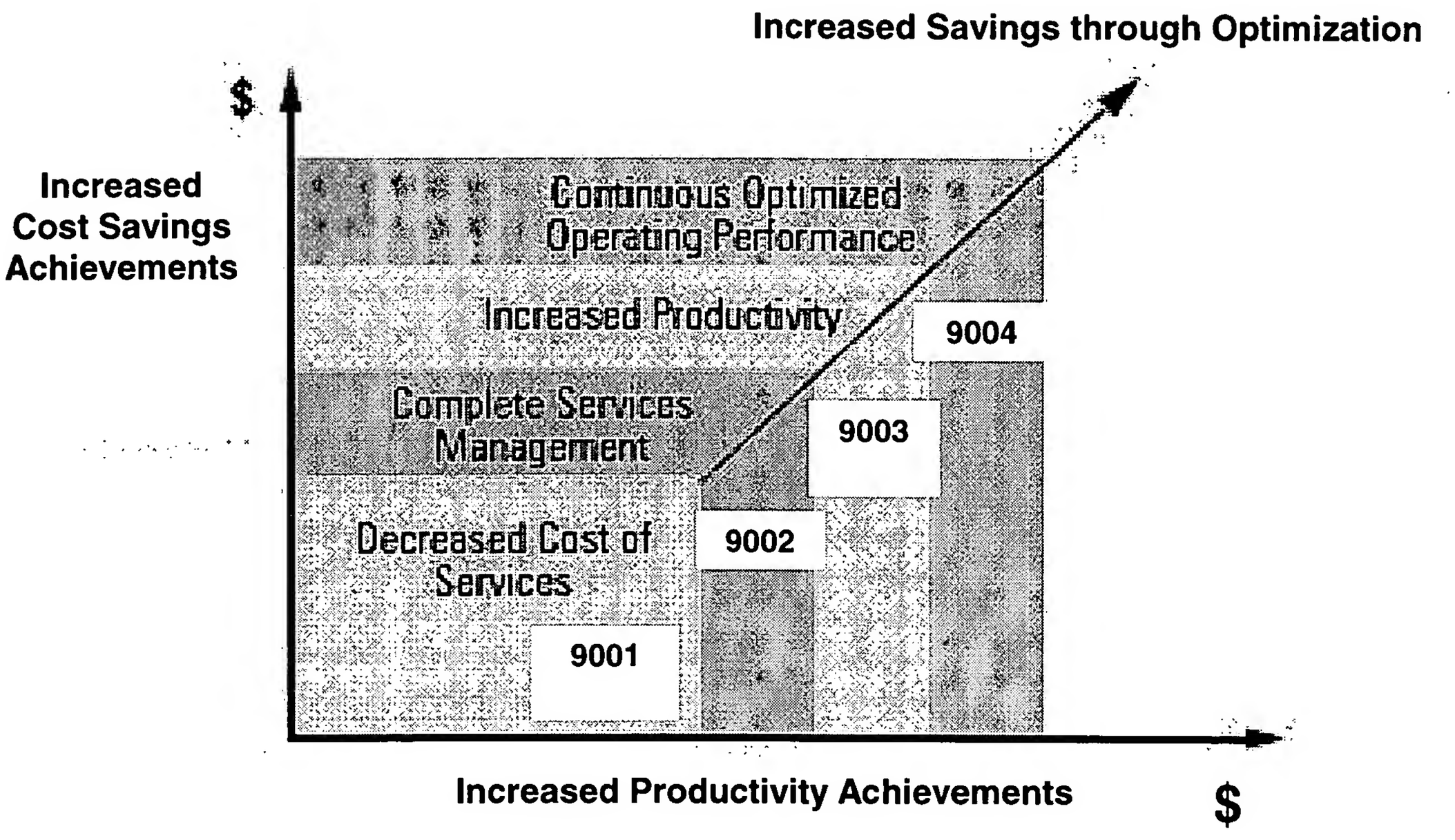
## Open Application Architecture



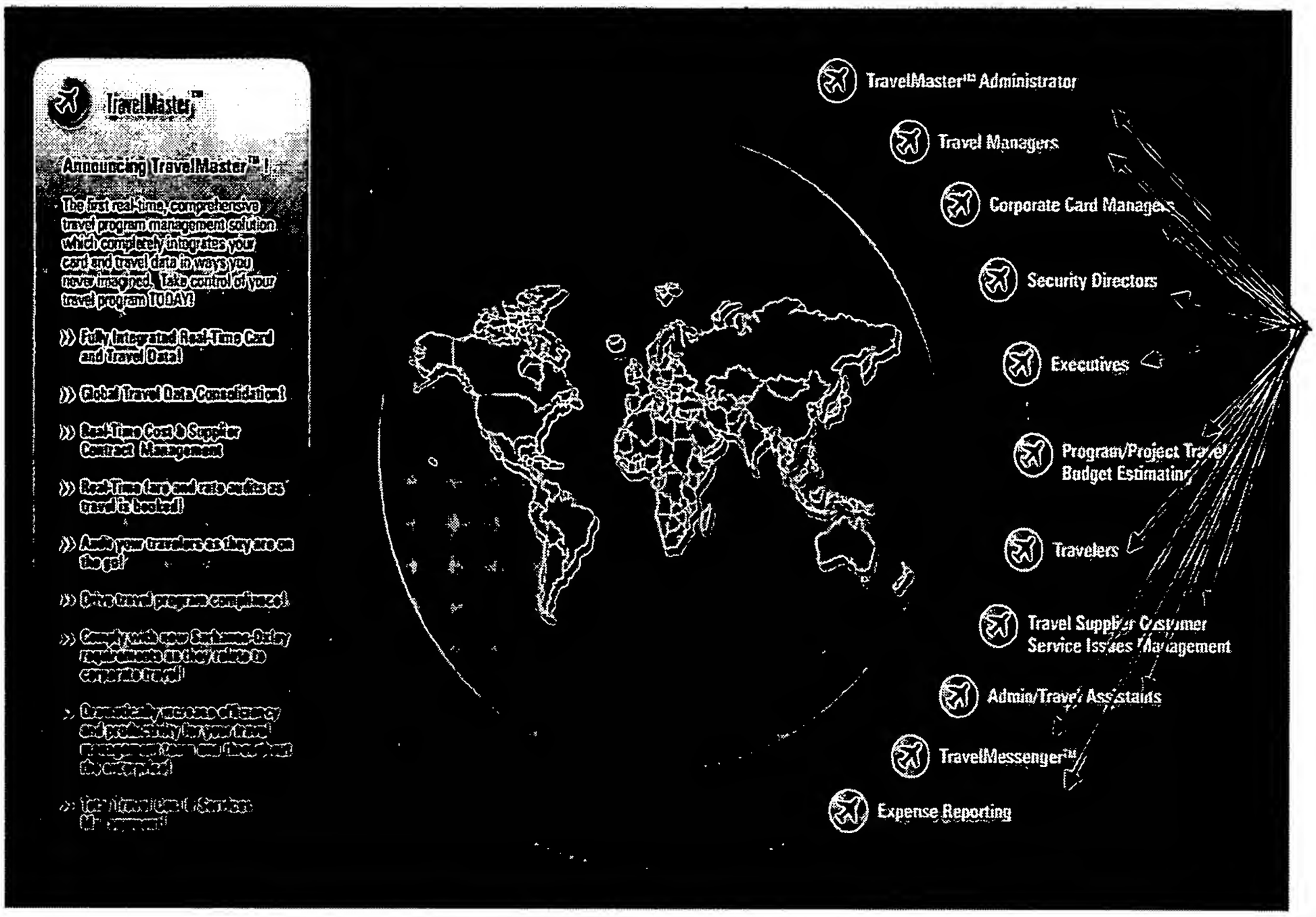
# FIGURE 8


TravelMaster ™ Applications
Common Integration Framework
TraveMaster ™ Applications
Capture Business Events
Apply Business Rules
8001
8002
e-Commerce Gateway
XML Gateway
Apply Maping Rules
Apply Transformations
Apply Validation Rules
Format Transaction
Subscribe XML on Queue
Publish XML on Queue
TravelMaster ™ Applications
E-Business Integration Products
Inbound/Outbound
Trading partner File
8010
8020
Inbound/Outbound
XML on Queue
8004
8005
Senders/Receivers
of Integration Data
8003
TravelMaster ™ Exchange
TravelMaster ™ Integration Server
EDI Translator
Third Party Application
Legacy
ERP/CRM
EAI
Other
Third Party Middleware
8100

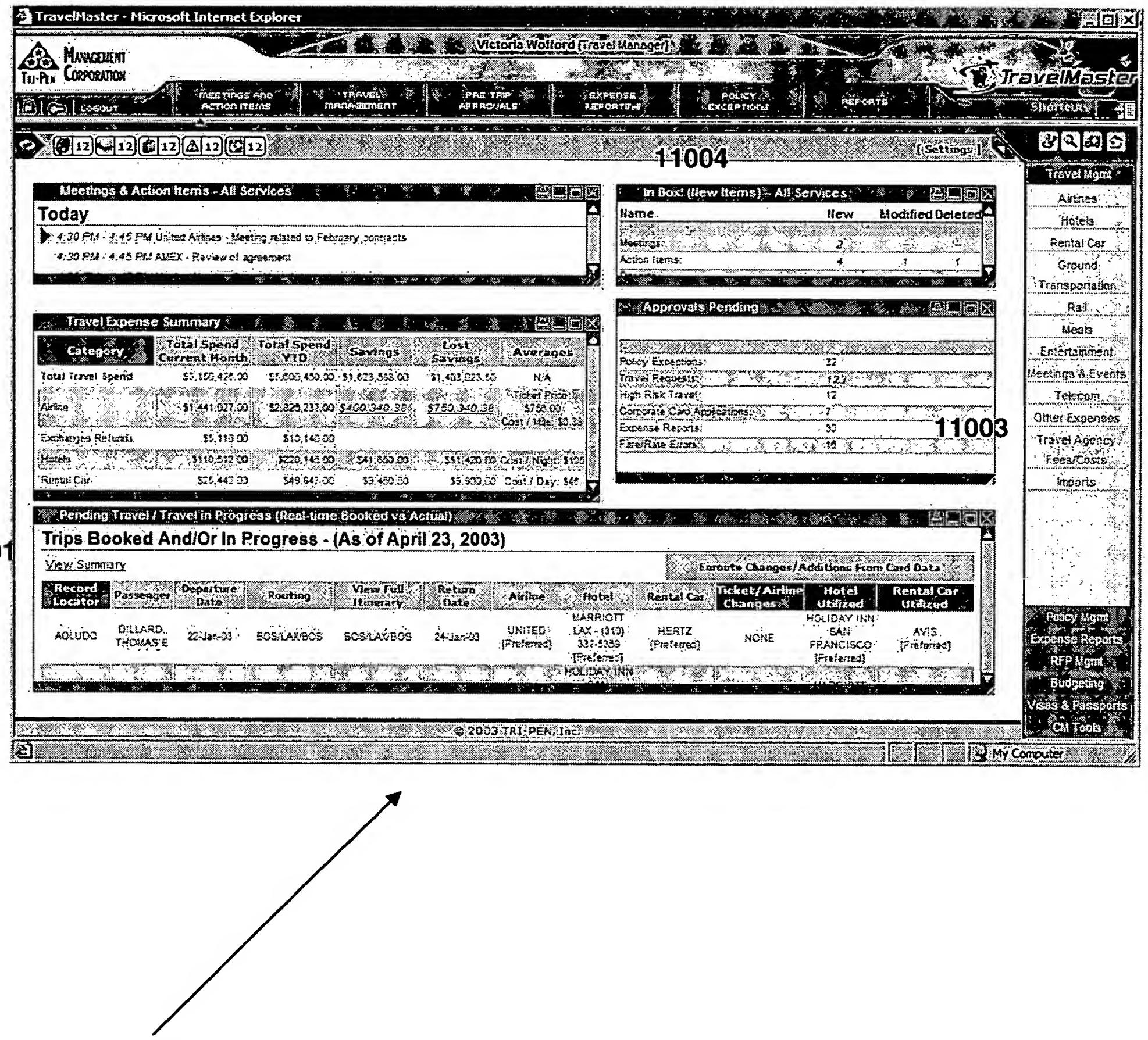
# FIGURE 9


Increased Savings through Optimization
$
Increased Cost Savings Achievements
Continuous Optimized Operating Performance
Increased Productivity
9004
Complete Services Management
9003
Decreased Cost of Services
9002
9001
Increased Productivity Achievements
$

# FIGURE 10

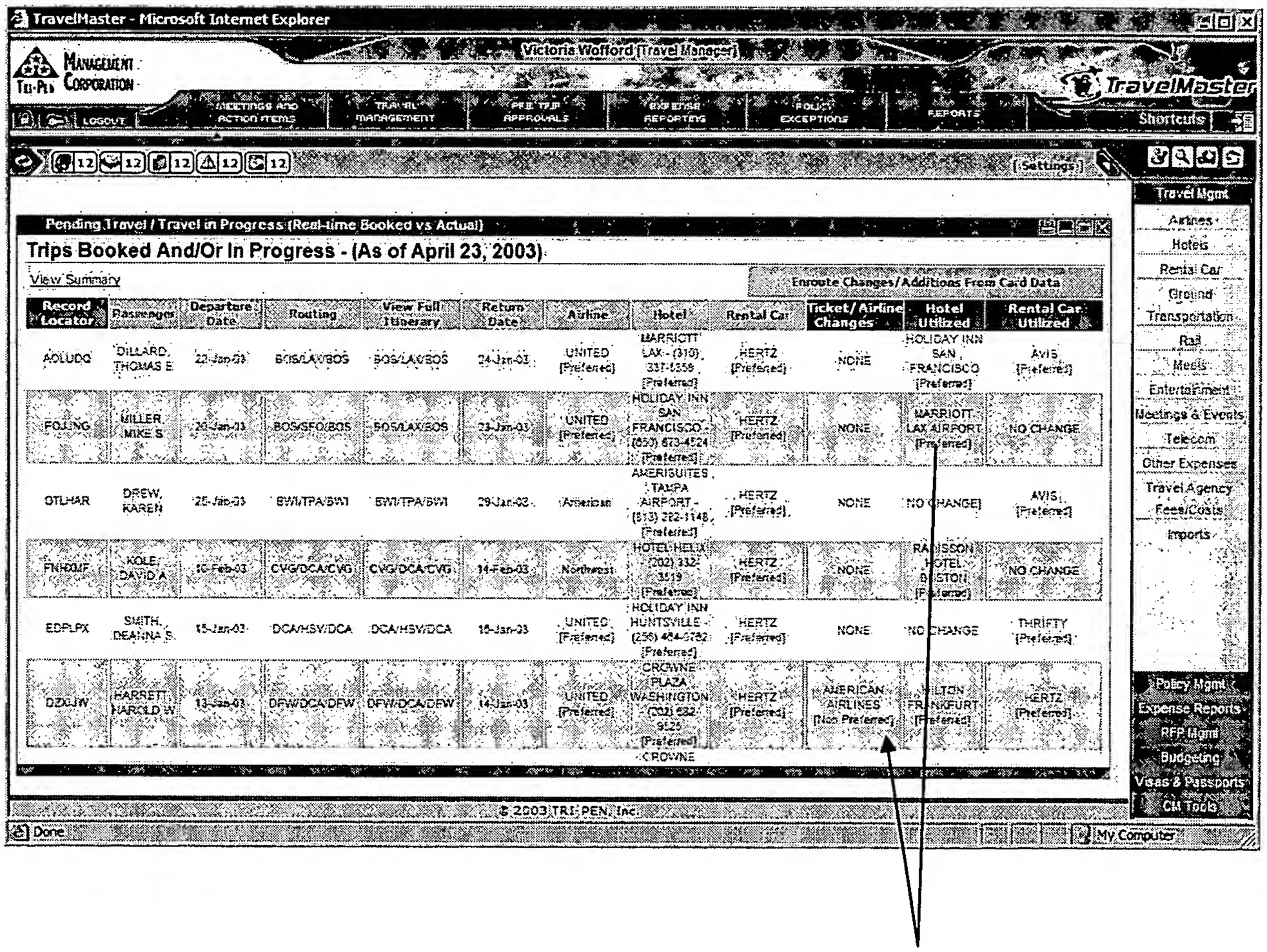

TravelMaster™
Announcing TravelMaster™ !
The first real-time, comprehensive travel program management solution which completely integrates your card and travel data in ways you never imagined. Take control of your travel program TODAY!
Fully Integrated Real-Time Card and Travel Data!
Global Travel Data Consolidation!
Real-Time Cost & Supplier Contract Management
Real-Time (any and all) exceptions as travel is booked!
Audit your travelers as they are on the go!
Drive travel program compliance!
Comply with new Sarbanes-Oxley requirements and other rules in complex travel!
Dramatically reduce the time and productivity lost by your travel managers when they have to do it manually!
TravelMaster™ Administrator
Travel Managers
Corporate Card Managers
Security Directors
Executives
Program/Project Travel Budget Estimating
Travelers
Travel Supplier Customer Service Issues Management
Admin/Travel Assistants
TravelMessenger™
Expense Reporting
10001

# FIGURE 11



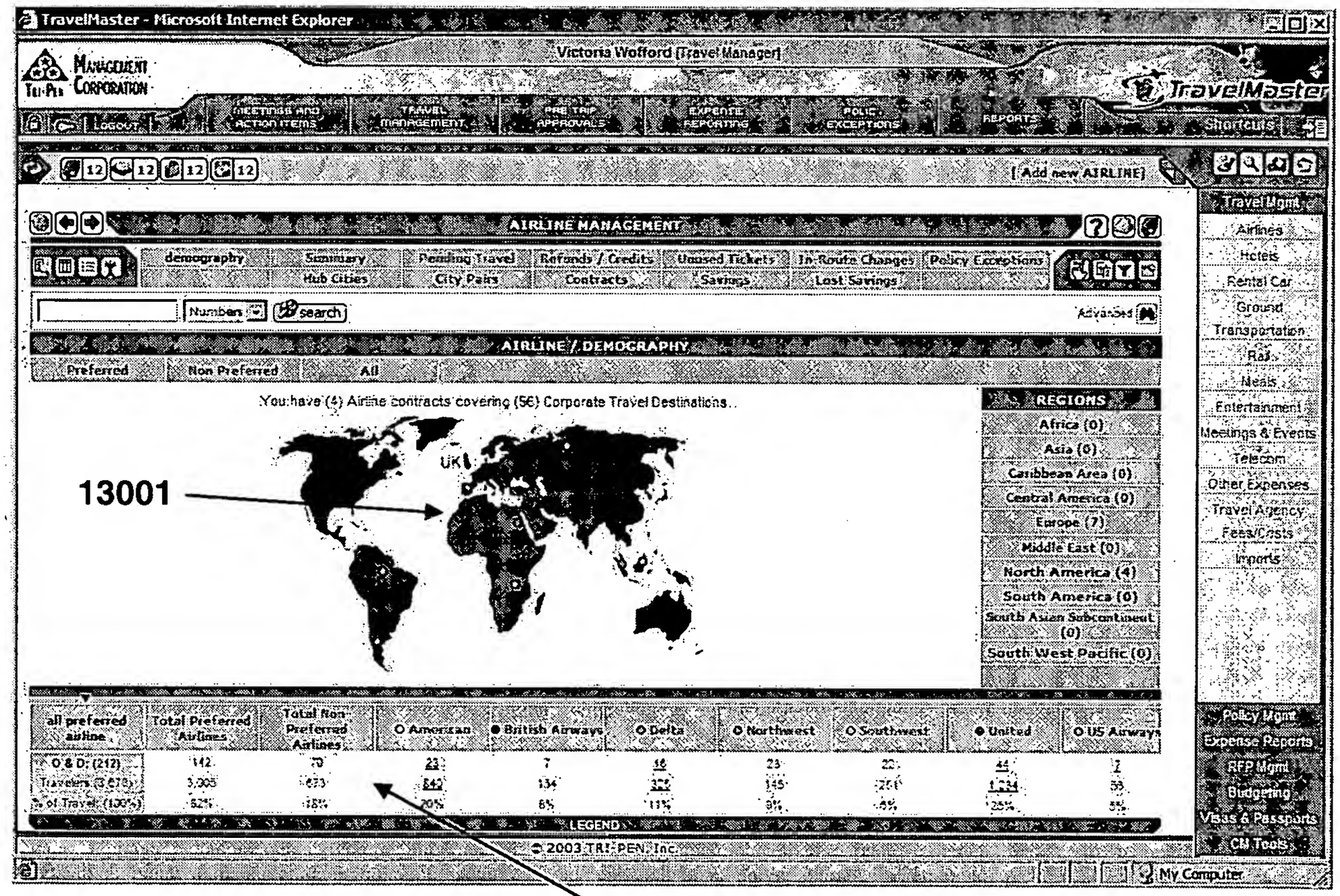

11000

# FIGURE 12

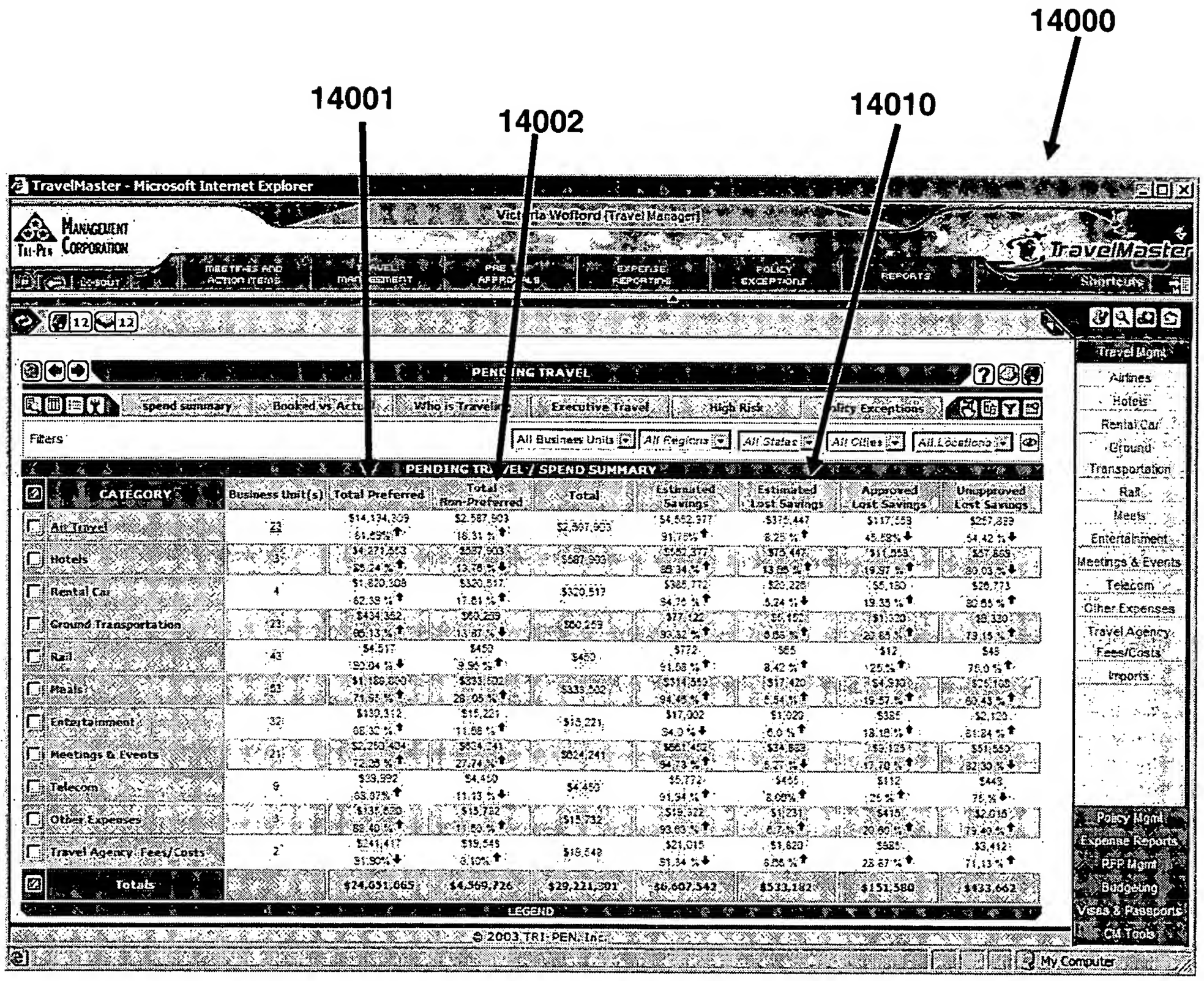



12001

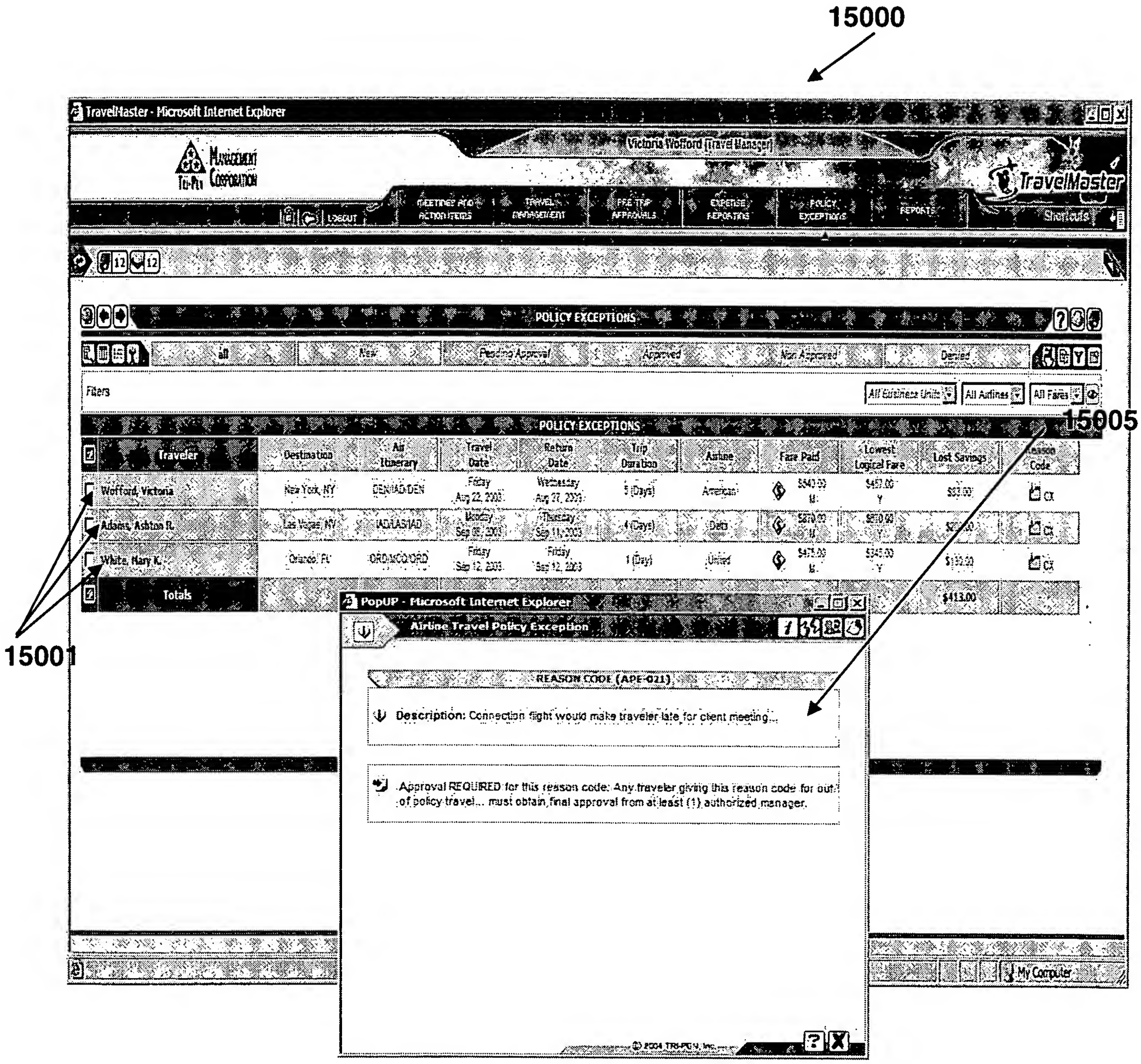
# FIGURE 13


TravelMaster - Microsoft Internet Explorer
Victoria Wofford [Travel Manager]
TravelMaster
Logout
Shortcuts
[ Add new AIRLINE ]
AIRLINE MANAGEMENT
demography
Summary
Pending Travel
Refunds / Credits
Unused Tickets
In-Route Changes
Policy Exceptions
Hub Cities
City Pairs
Contracts
Savings
Lost Savings
Numbers
search
Advanced
AIRLINE / DEMOGRAPHY
Preferred
Non Preferred
All
You have (4) Airline contracts covering (56) Corporate Travel Destinations..
UK
13001
REGIONS
Africa (0)
Asia (0)
Caribbean Area (0)
Central America (0)
Europe (7)
Middle East (0)
North America (4)
South America (0)
South Asian Subcontinent (0)
South West Pacific (0)
Travel Mgmt
Airlines
Hotels
Rental Car
Ground Transportation
Rail
Meals
Entertainment
Meetings & Events
Telecom
Other Expenses
Travel Agency Fees/Costs
Imports
Policy Mgmt
Expense Reports
RFP Mgmt
Budgeting
Visas & Passports
CM Tools
all preferred airline
Total Preferred Airlines
Total Non-Preferred Airlines
American
British Airways
Delta
Northwest
Southwest
United
US Airways
O & D: (212)
Travelers (3,678)
% of Travel (100%)
LEGEND
2003 TRIPPEN, Inc.
My Computer
13002

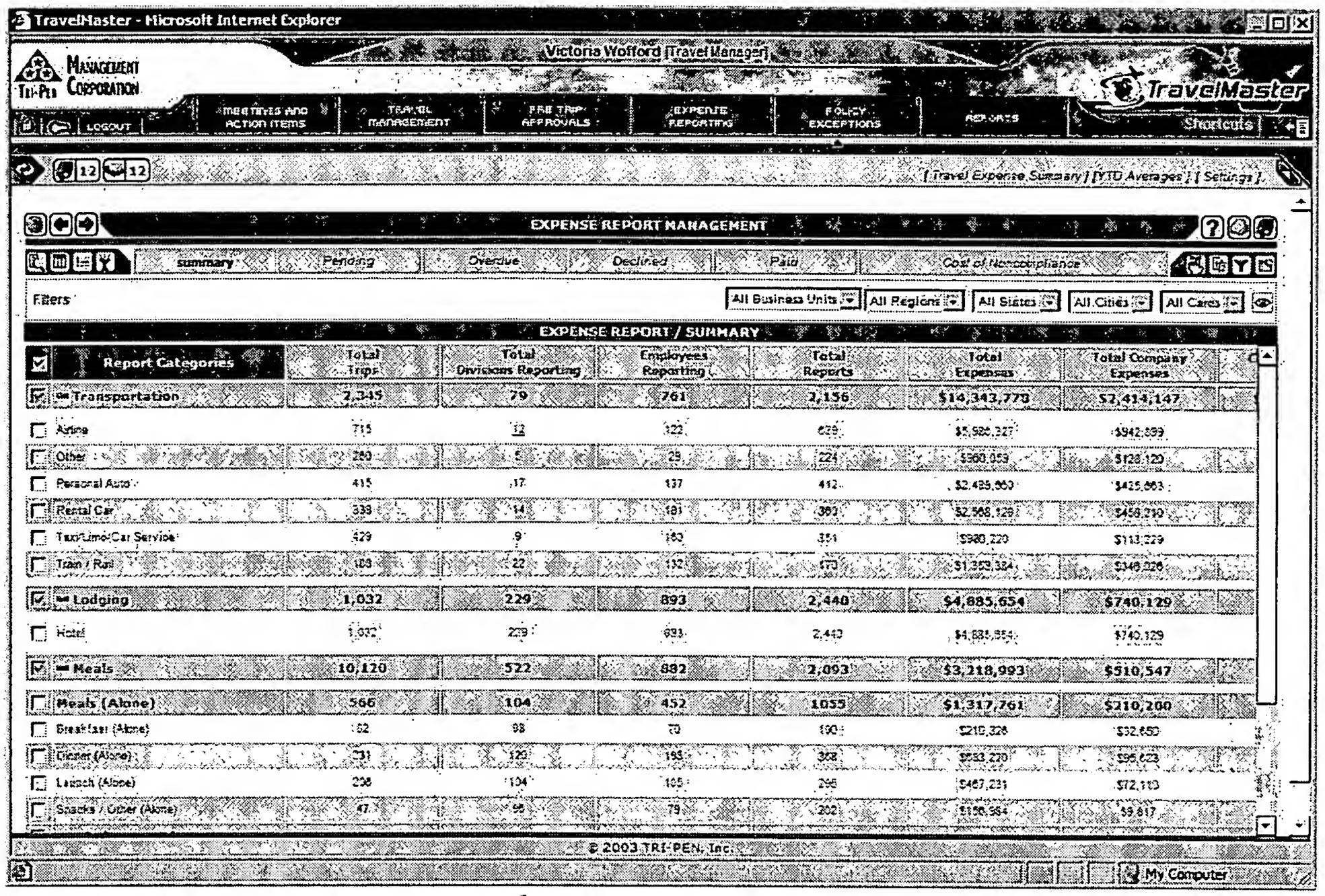
# FIGURE 14


14000
14001
14002
14010
TravelMaster - Microsoft Internet Explorer
Management Corporation
Tri-Pen
TravelMaster
PENDING TRAVEL
spend summary
Executive Travel
High Risk
Filters
All Business Units
All Regions
All States
All Cities
All Locations
PENDING TRAVEL / SPEND SUMMARY
CATEGORY
Business Unit(s)
Total Preferred
Total Non-Preferred
Total
Estimated Savings
Estimated Lost Savings
Approved Lost Savings
Unapproved Lost Savings
Air Travel
Hotels
Rental Car
Ground Transportation
Rail
Meals
Entertainment
Meetings & Events
Telecom
Other Expenses
Travel Agency Fees/Costs
Totals
LEGEND
Travel Mgmt
Airlines
Hotels
Rental Car
Ground Transportation
Rail
Meals
Entertainment
Meetings & Events
Telecom
Other Expenses
Travel Agency Fees/Costs
Imports
Policy Mgmt
Expense Reports
RFP Mgmt
Budgeting
Visas & Passports
CM Tools
© 2003 TRI-PEN, Inc.
My Computer

# FIGURE 15

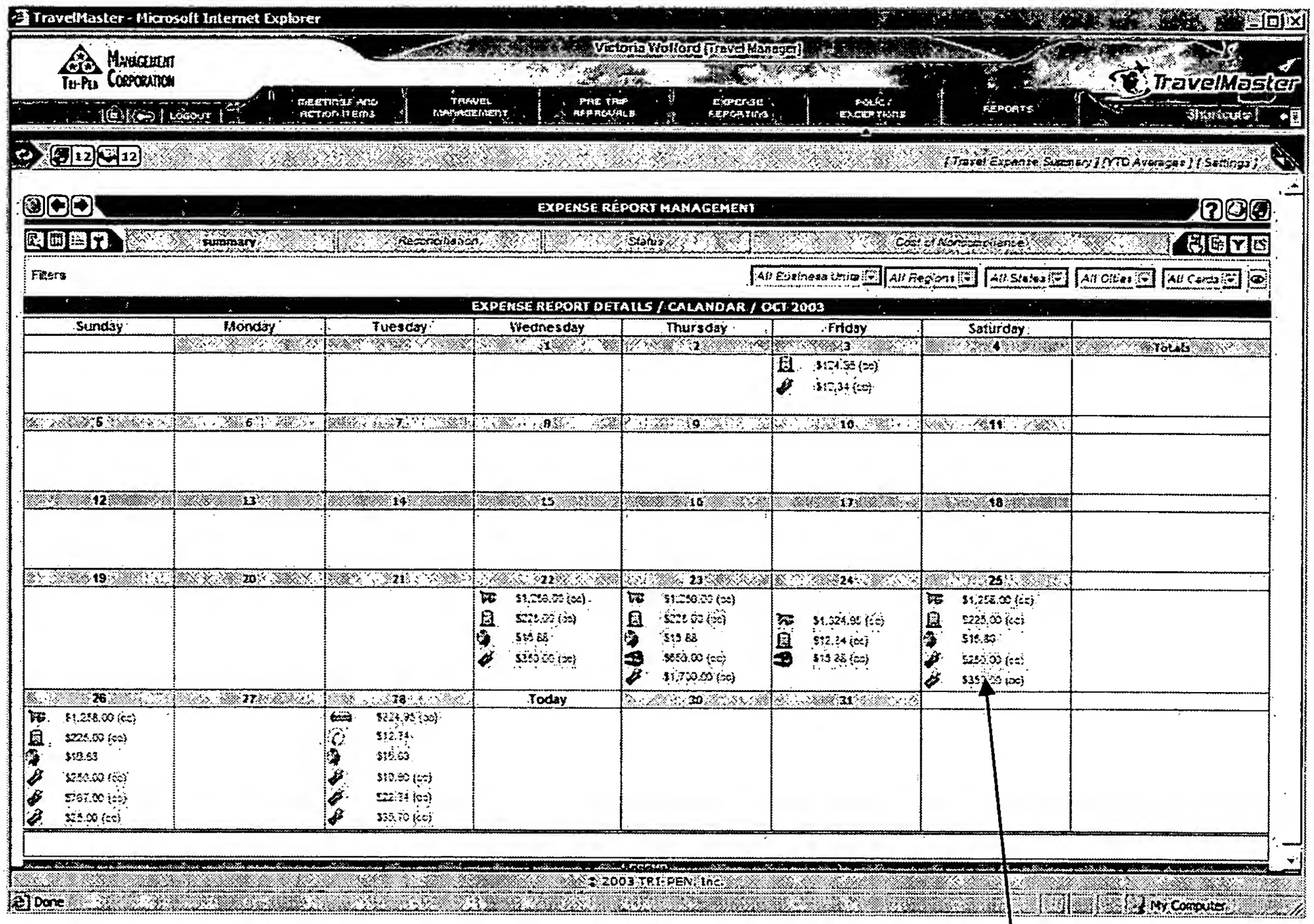

15000
TravelMaster - Microsoft Internet Explorer
Victoria Wofford (Travel Manager)
TravelMaster
POLICY EXCEPTIONS
Traveler
Destination
Air Itinerary
Travel Date
Return Date
Trip Duration
Airline
Fare Paid
Lowest Logical Fare
Lost Savings
Reason Code
Wofford, Victoria
Adams, Ashton R.
White, Mary K.
Totals
$413.00
15001
15005
PopUP - Microsoft Internet Explorer
Airline Travel Policy Exception
REASON CODE (APE-021)
Description: Connection flight would make traveler late for client meeting...
Approval REQUIRED for this reason code: Any traveler giving this reason code for out of policy travel... must obtain final approval from at least (1) authorized manager.
My Computer

# FIGURE 16

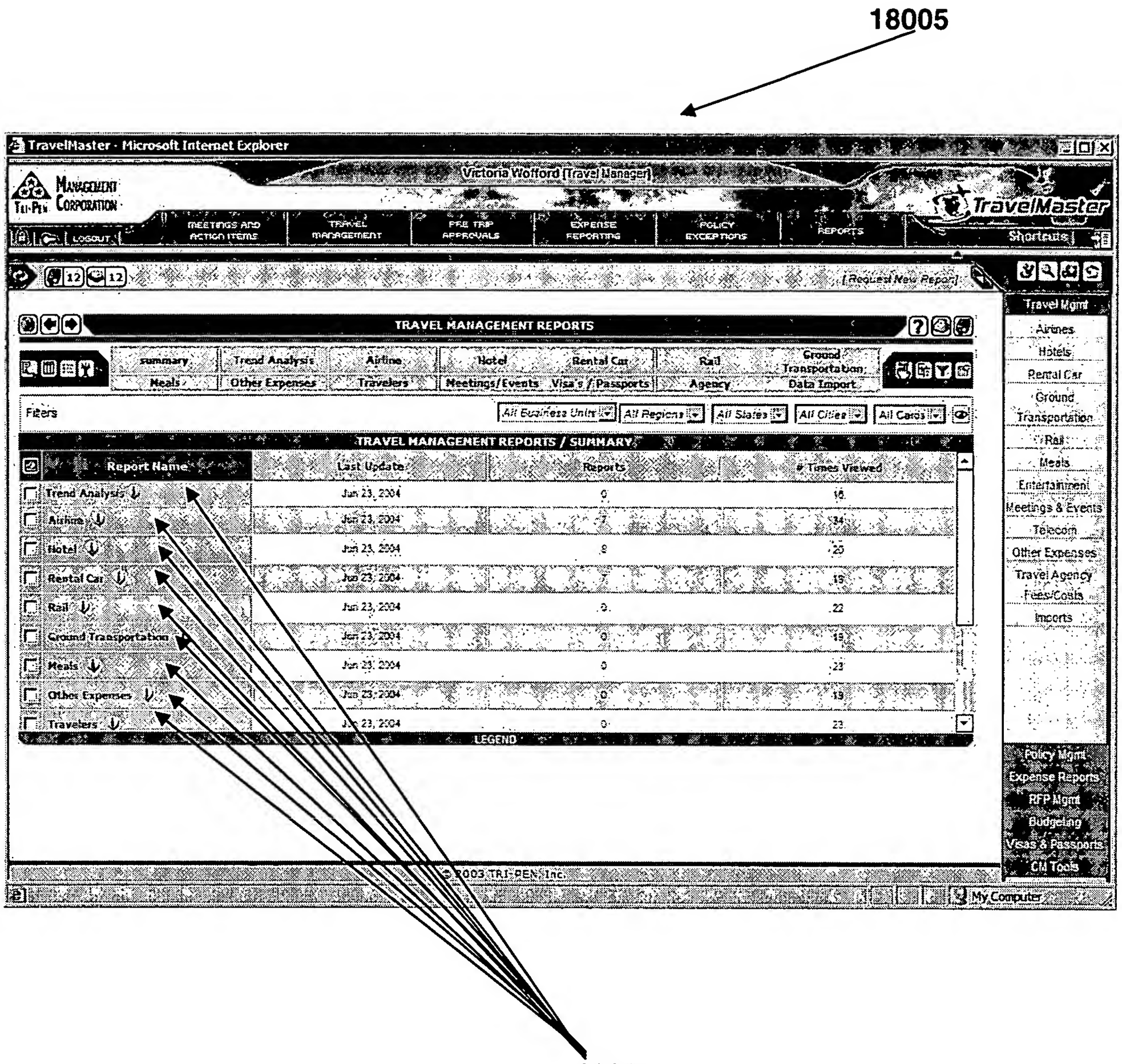



16001

# FIGURE 17

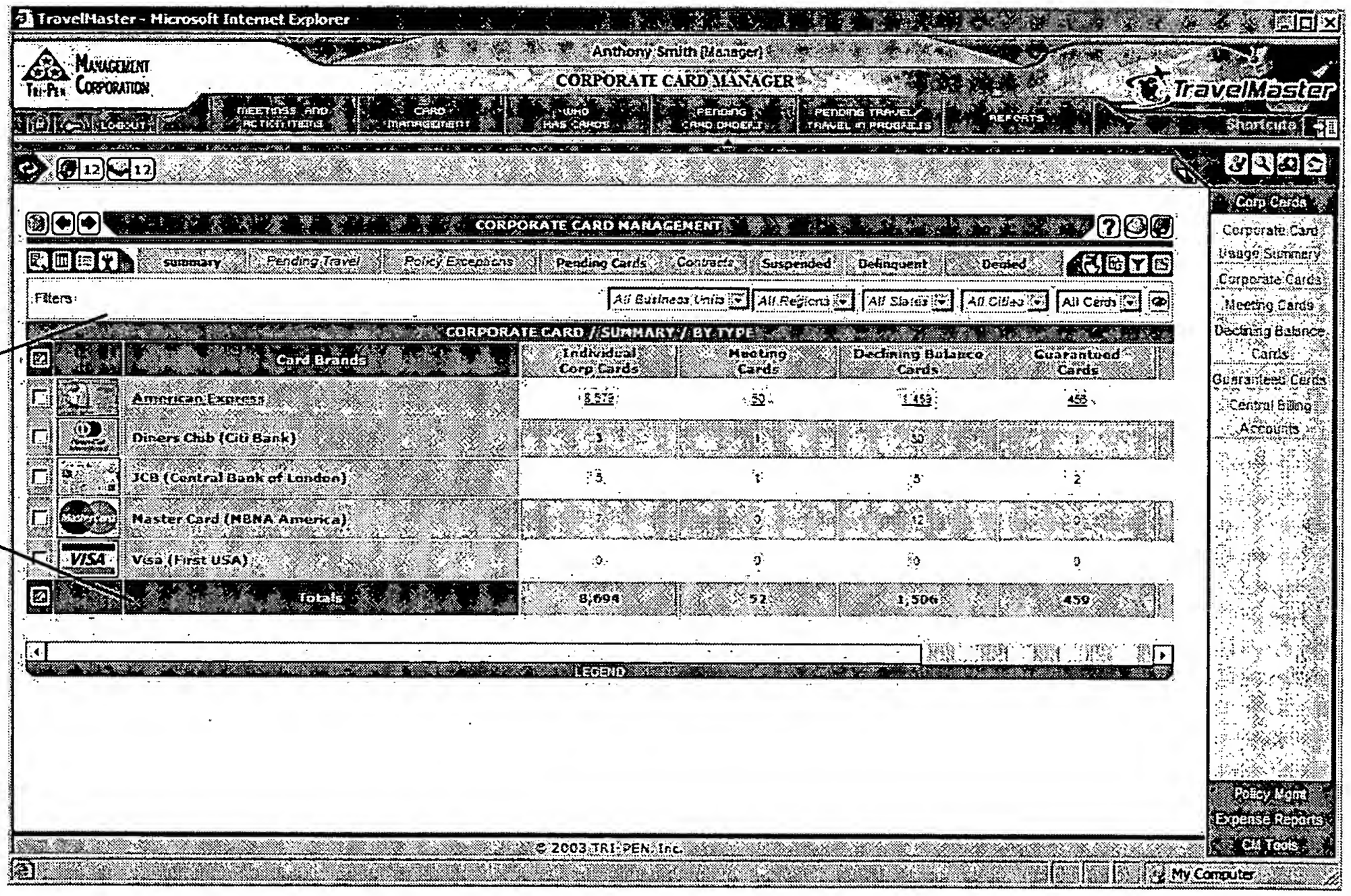

TravelMaster - Microsoft Internet Explorer
Victoria Wolford (Travel Manager)
TRI-PEN MANAGEMENT CORPORATION
TravelMaster
LOGOUT
MEETINGS AND ACTION ITEMS
TRAVEL MANAGEMENT
PRE TRIP APPROVALS
EXPENSE REPORTING
POLICY EXCEPTIONS
REPORTS
Shortcuts
(Travel Expense Summary) (YTD Averages) (Settings)
EXPENSE REPORT MANAGEMENT
Summary
Reconciliation
Status
Cost of Noncompliance
Filters
All Business Units
All Regions
All States
All Cities
All Cards
EXPENSE REPORT DETAILS / CALANDAR / OCT 2003
Sunday
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Totals
Today
2003 TRI-PEN Inc.
Done
My Computer
17005
17001

# FIGURE 18


18005
TravelMaster - Microsoft Internet Explorer
Victoria Wofford [Travel Manager]
Management Tri-Pen Corporation
TravelMaster
LOGOUT
MEETINGS AND ACTION ITEMS
TRAVEL MANAGEMENT
PRE TRIP APPROVALS
EXPENSE REPORTING
POLICY EXCEPTIONS
REPORTS
Shortcuts
[Request New Report]
TRAVEL MANAGEMENT REPORTS
summary
Trend Analysis
Airline
Hotel
Rental Car
Rail
Ground Transportation
Meals
Other Expenses
Travelers
Meetings/Events
Visa's / Passports
Agency
Data Import
Filters
All Business Units
All Regions
All States
All Cities
All Cards
TRAVEL MANAGEMENT REPORTS / SUMMARY
Report Name
Last Update
Reports
# Times Viewed
Trend Analysis
Jun 23, 2004
0
16
Airline
Jun 23, 2004
7
34
Hotel
Jun 23, 2004
8
25
Rental Car
Jun 23, 2004
19
Rail
Jun 23, 2004
0
22
Ground Transportation
Jun 23, 2004
0
19
Meals
Jun 23, 2004
0
23
Other Expenses
Jun 23, 2004
0
19
Travelers
Jun 23, 2004
0
23
LEGEND
Travel Mgmt
Airlines
Hotels
Rental Car
Ground Transportation
Rail
Meals
Entertainment
Meetings & Events
Telecom
Other Expenses
Travel Agency Fees/Costs
Imports
Policy Mgmt
Expense Reports
RFP Mgmt
Budgeting
Visas & Passports
CM Tools
© 2003 TRI-PEN Inc.
My Computer
18001

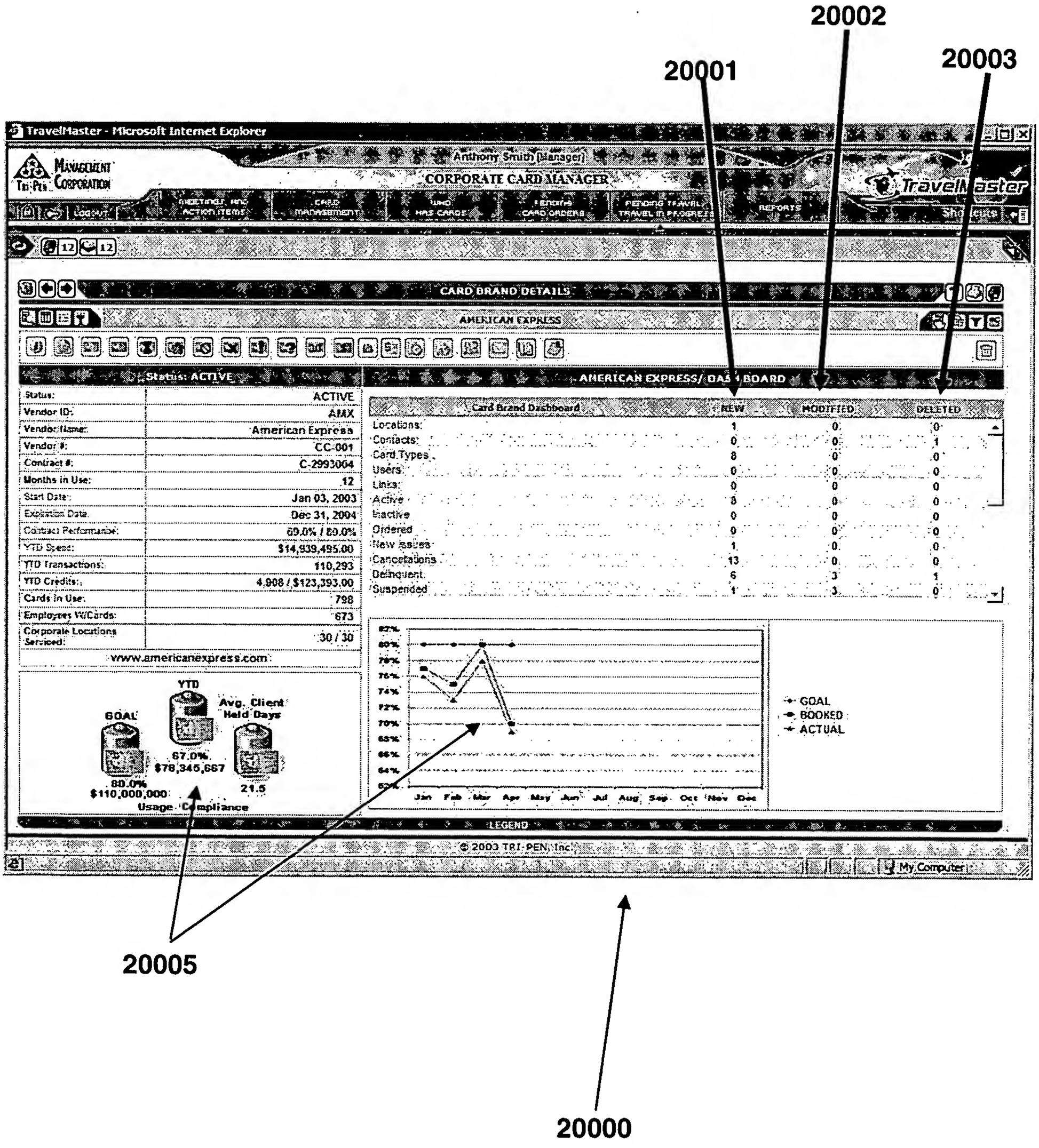
19000

# FIGURE 19

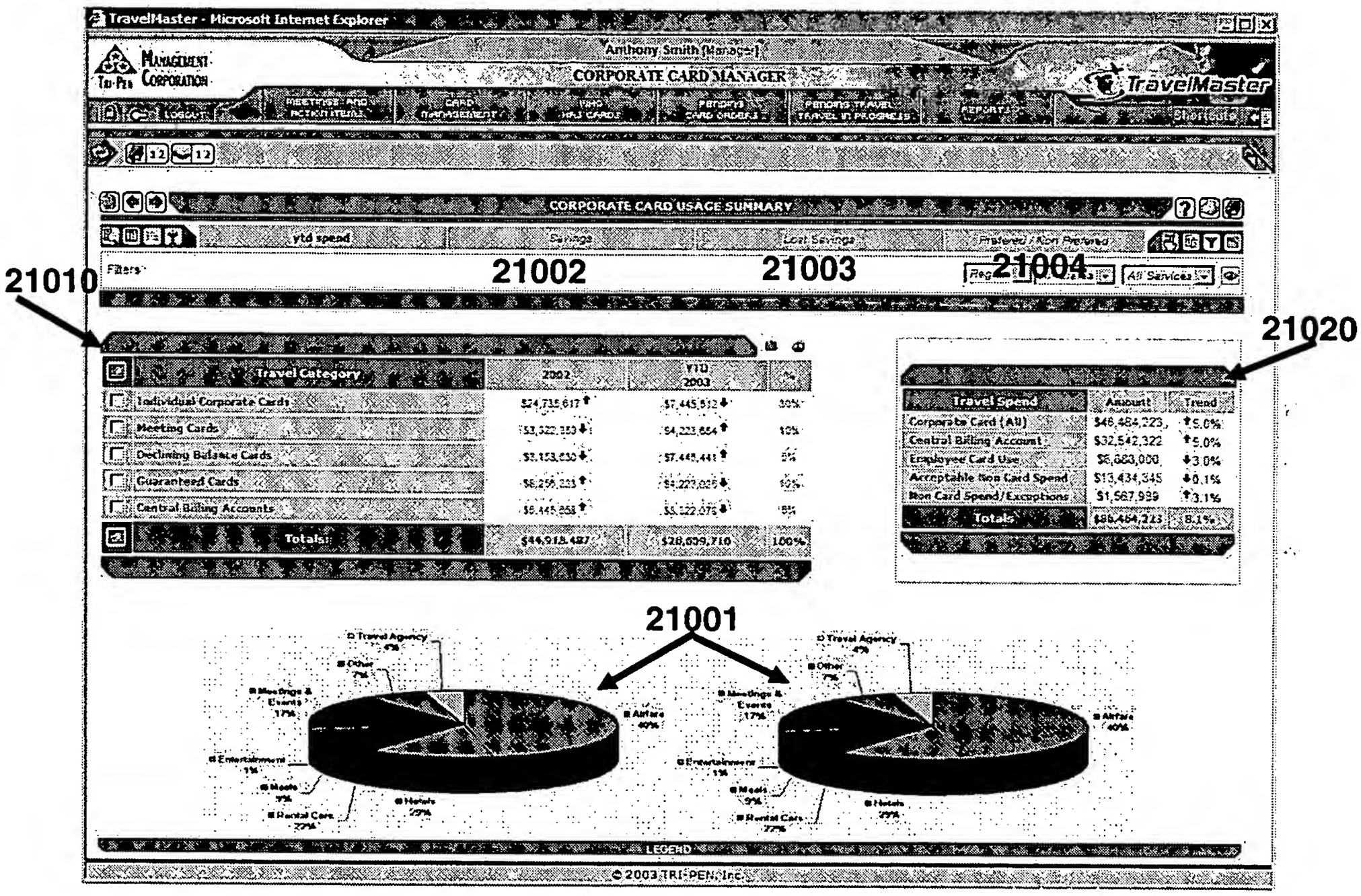



19001

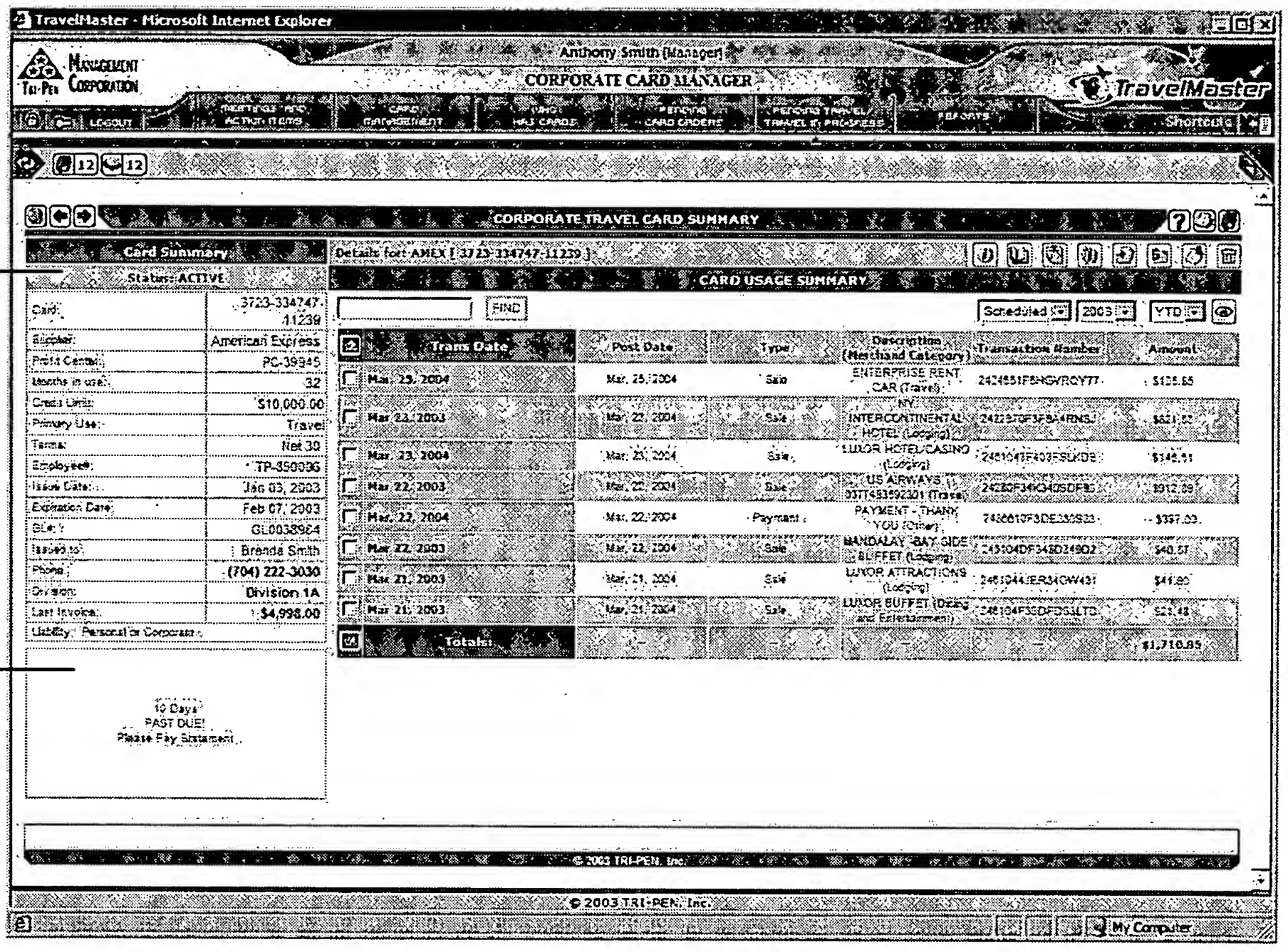
# FIGURE 20


20001
20002
20003
TravelMaster - Microsoft Internet Explorer
Anthony Smith [Manager]
CORPORATE CARD MANAGER
TravelMaster
LOGOUT
REPORTS
CARD BRAND DETAILS
AMERICAN EXPRESS
Status: ACTIVE
AMERICAN EXPRESS/ DASHBOARD
Status: ACTIVE
Vendor ID: AMX
Vendor Name: American Express
Vendor #: CC-001
Contract #: C-2993004
Months in Use: 12
Start Date: Jan 03, 2003
Expiration Date: Dec 31, 2004
Contract Performance: 69.0% / 80.0%
YTD Spend: $14,939,495.00
YTD Transactions: 10,293
YTD Credits: 4,908 / $123,393.00
Cards in Use: 798
Employees W/Cards: 673
Corporate Locations Serviced: 30 / 30
www.americanexpress.com
Card Brand Dashboard
NEW
MODIFIED
DELETED
Locations: 1 0 0
Contacts: 0 0 1
Card Types: 8 0 0
Users: 0 0 0
Links: 0 0 0
Active: 8 0 0
Inactive 0 0 0
Ordered 0 0 0
New Issues 1 0 0
Cancellations 13 0 0
Delinquent 6 3 1
Suspended 1 3 0
YTD
Avg. Client Held Days
GOAL
67.0%
$78,345,667
80.0%
$110,000,000
21.5
Usage Compliance
GOAL
BOOKED
ACTUAL
LEGEND
© 2003 TRI-PEN, Inc.
My Computer
20005
20000

# FIGURE 21

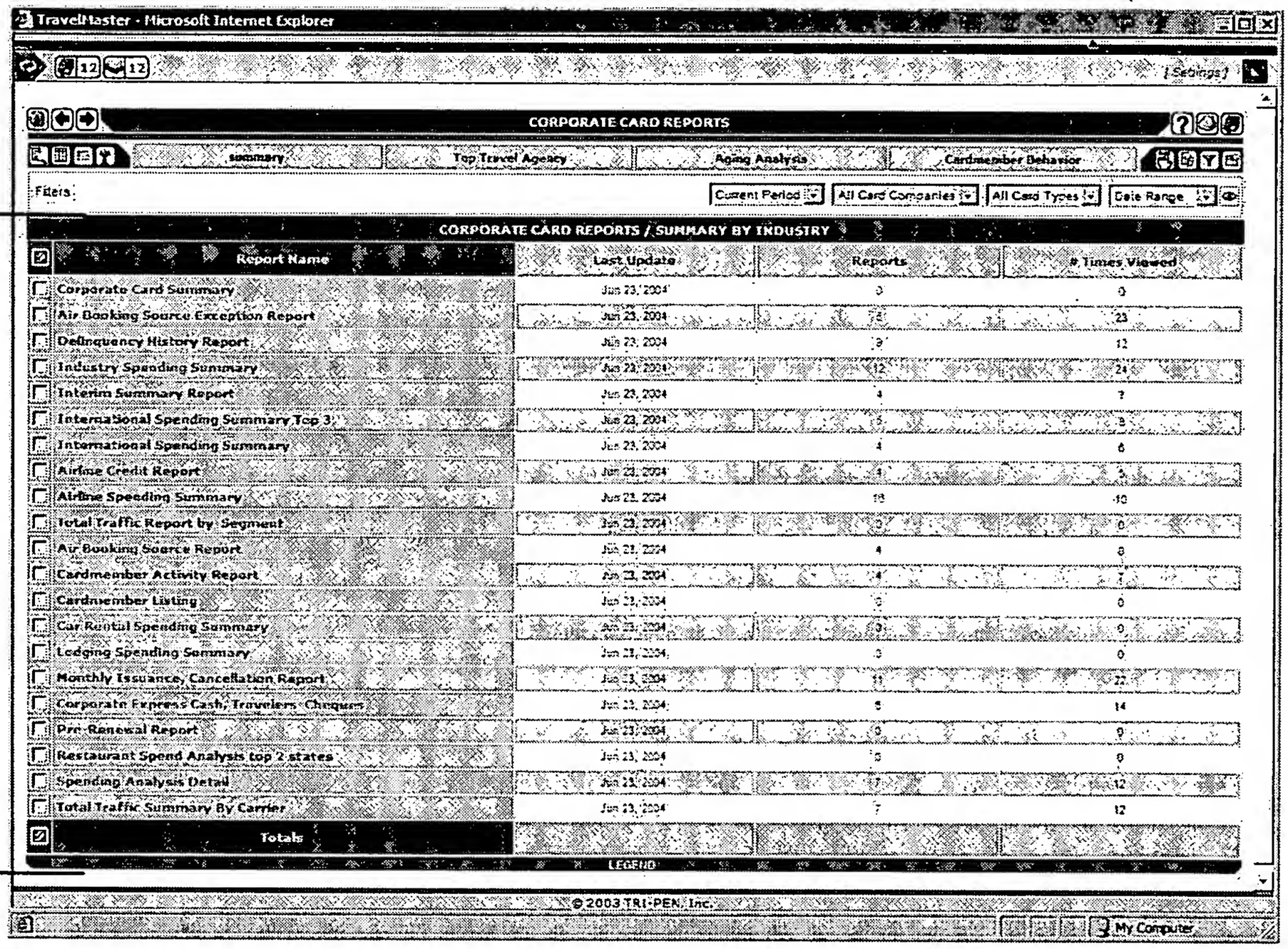

TravelMaster - Microsoft Internet Explorer
Anthony Smith [Manager]
CORPORATE CARD MANAGER
TravelMaster
CORPORATE CARD USAGE SUMMARY
ytd spend
Savings
Lost Savings
Preferred / Non Preferred
Filters
21010
21002
21003
21004
All Services
21020
Travel Category
2002
YTD 2003
Individual Corporate Cards
Meeting Cards
Declining Balance Cards
Guaranteed Cards
Central Billing Accounts
Totals:
$44,918,487
$28,039,710
100%
Travel Spend
Amount
Trend
Corporate Card (All)
$46,464,223
↑5.0%
Central Billing Account
$32,542,322
↑5.0%
Employee Card Use
$6,693,000
↓3.0%
Acceptable Non Card Spend
$13,434,345
↓0.1%
Non Card Spend/Exceptions
$1,567,989
↑3.1%
Totals
$86,464,223
8.1%
21001
Travel Agency 4%
Other 7%
Meetings & Events 17%
Airfare 40%
Entertainment 1%
Meals 9%
Rental Cars 22%
Hotels 29%
LEGEND
© 2003 TRI-PEN, Inc.

# FIGURE 22

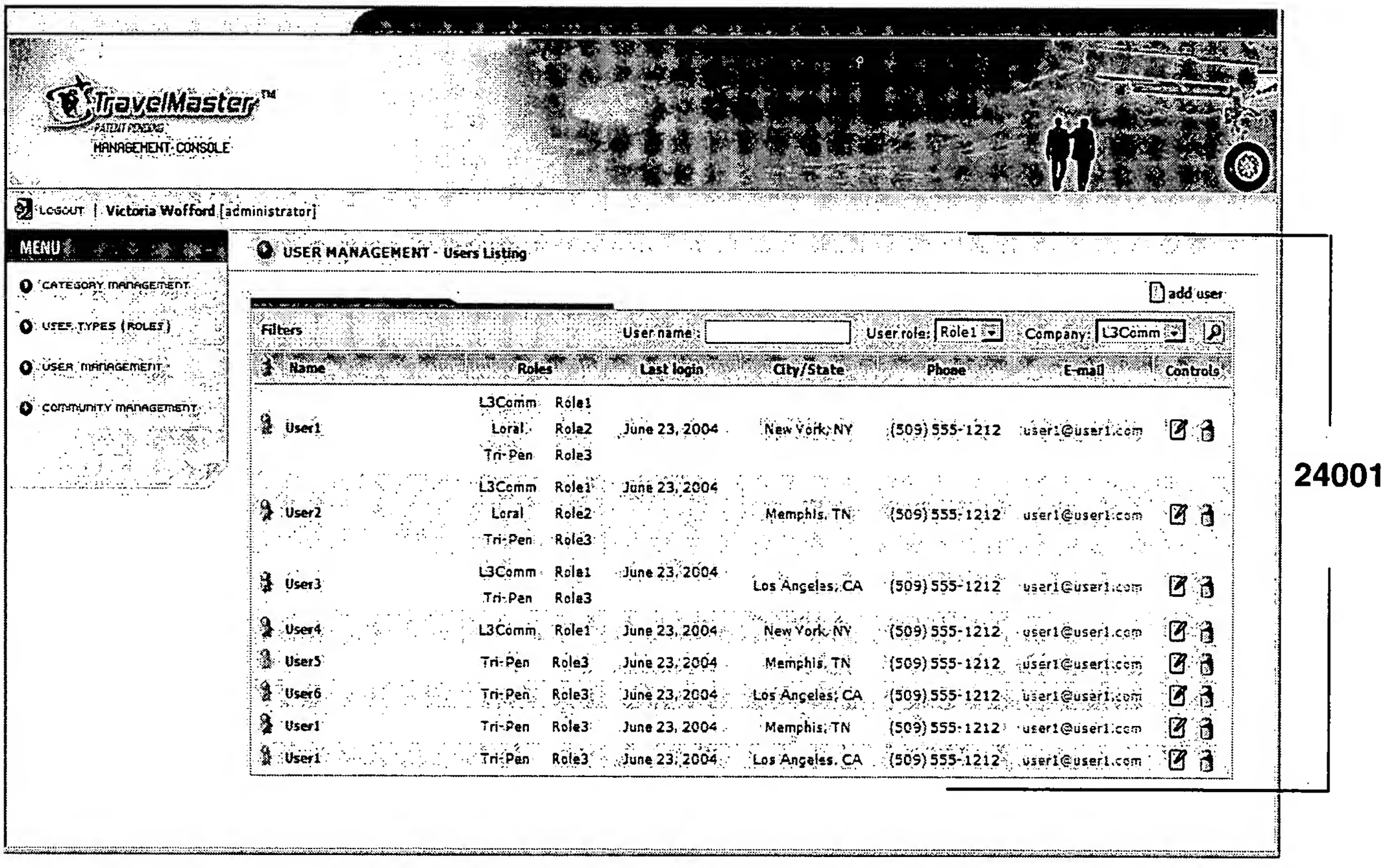



22001

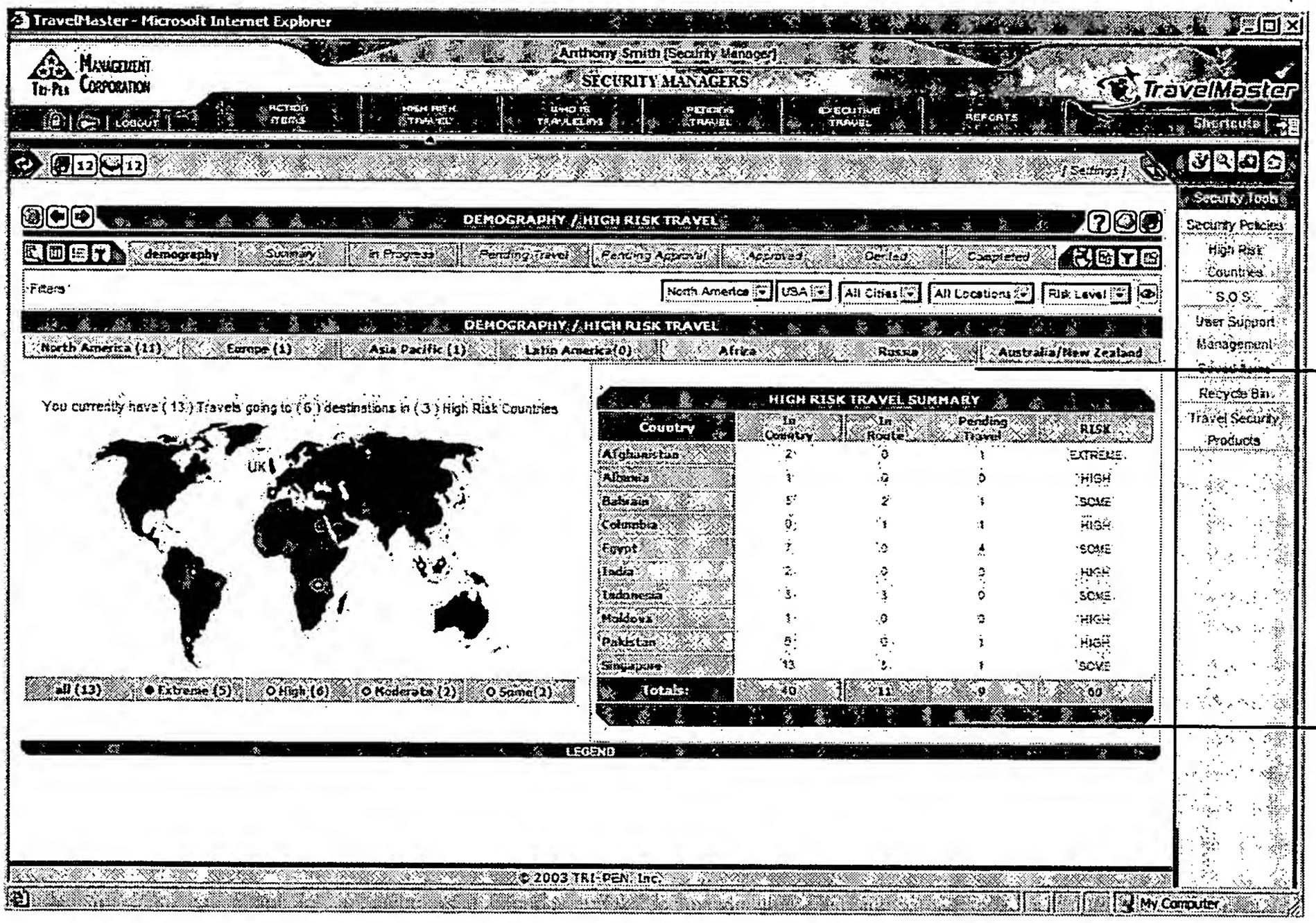
# FIGURE 23


TravelMaster - Microsoft Internet Explorer
Settings
CORPORATE CARD REPORTS
summary
Top Travel Agency
Aging Analysis
Cardmember Behavior
Filters:
Current Period
All Card Companies
All Card Types
Date Range
CORPORATE CARD REPORTS / SUMMARY BY INDUSTRY
Report Name
Last Update
Reports
# Times Viewed
Corporate Card Summary Jun 23, 2004 0 0
Air Booking Source Exception Report Jun 23, 2004 23
Delinquency History Report Jun 23, 2004 12
Industry Spending Summary Jun 23, 2004 24
Interim Summary Report Jun 23, 2004 7
International Spending Summary Top 3 Jun 23, 2004 3
International Spending Summary Jun 23, 2004 6
Airline Credit Report Jun 23, 2004
Airline Spending Summary Jun 23, 2004 10
Total Traffic Report by Segment Jun 23, 2004 0
Air Booking Source Report Jun 23, 2004 8
Cardmember Activity Report Jun 23, 2004 7
Cardmember Listing Jun 23, 2004 0
Car Rental Spending Summary Jun 23, 2004 0
Lodging Spending Summary Jun 23, 2004 0
Monthly Issuance, Cancellation Report Jun 23, 2004 22
Corporate Express Cash, Travelers Cheques Jun 23, 2004 14
Pre-Renewal Report Jun 23, 2004 0
Restaurant Spend Analysis top 2 states Jun 23, 2004 0
Spending Analysis Detail Jun 23, 2004 12
Total Traffic Summary By Carrier Jun 23, 2004 12
Totals
LEGEND
23001
© 2003 TRI-PEN, Inc.
My Computer

# FIGURE 24

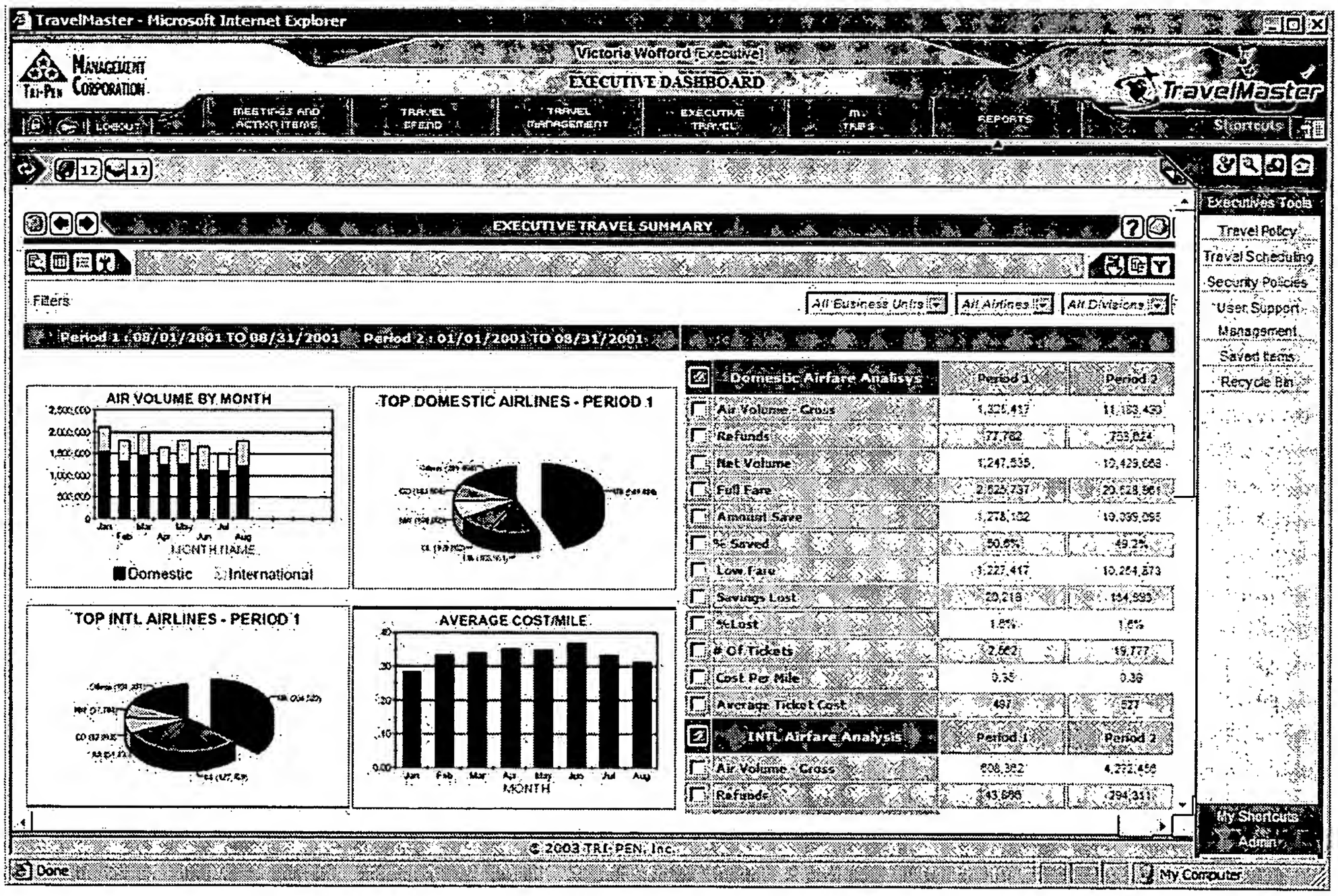

TravelMaster™
PATENT PENDING
MANAGEMENT CONSOLE
LOGOUT | Victoria Wofford [administrator]
MENU
CATEGORY MANAGEMENT
USER TYPES (ROLES)
USER MANAGEMENT
COMMUNITY MANAGEMENT
USER MANAGEMENT - Users Listing
add user
Filters
User name:
User role: Role1
Company: L3Comm
Name
Roles
Last login
City/State
Phone
E-mail
Controls
User1 L3Comm Role1 Loral Role2 Tri-Pen Role3 June 23, 2004 New York, NY (509) 555-1212 user1@user1.com
User2 L3Comm Role1 Loral Role2 Tri-Pen Role3 June 23, 2004 Memphis, TN (509) 555-1212 user1@user1.com
User3 L3Comm Role1 Tri-Pen Role3 June 23, 2004 Los Angeles, CA (509) 555-1212 user1@user1.com
User4 L3Comm Role1 June 23, 2004 New York, NY (509) 555-1212 user1@user1.com
User5 Tri-Pen Role3 June 23, 2004 Memphis, TN (509) 555-1212 user1@user1.com
User6 Tri-Pen Role3 June 23, 2004 Los Angeles, CA (509) 555-1212 user1@user1.com
User1 Tri-Pen Role3 June 23, 2004 Memphis, TN (509) 555-1212 user1@user1.com
User1 Tri-Pen Role3 June 23, 2004 Los Angeles, CA (509) 555-1212 user1@user1.com
24001

# FIGURE 25



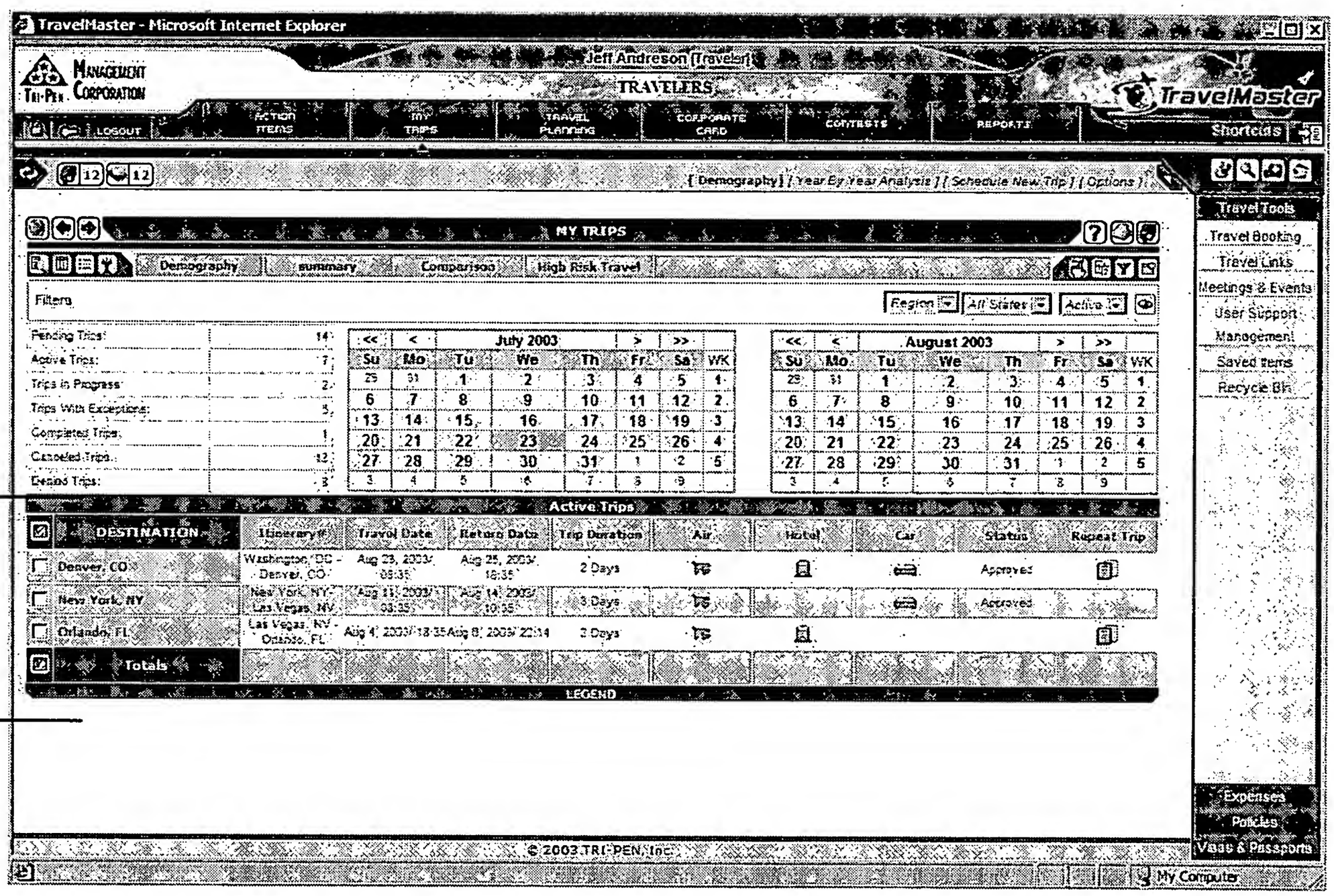

25001

# FIGURE 26



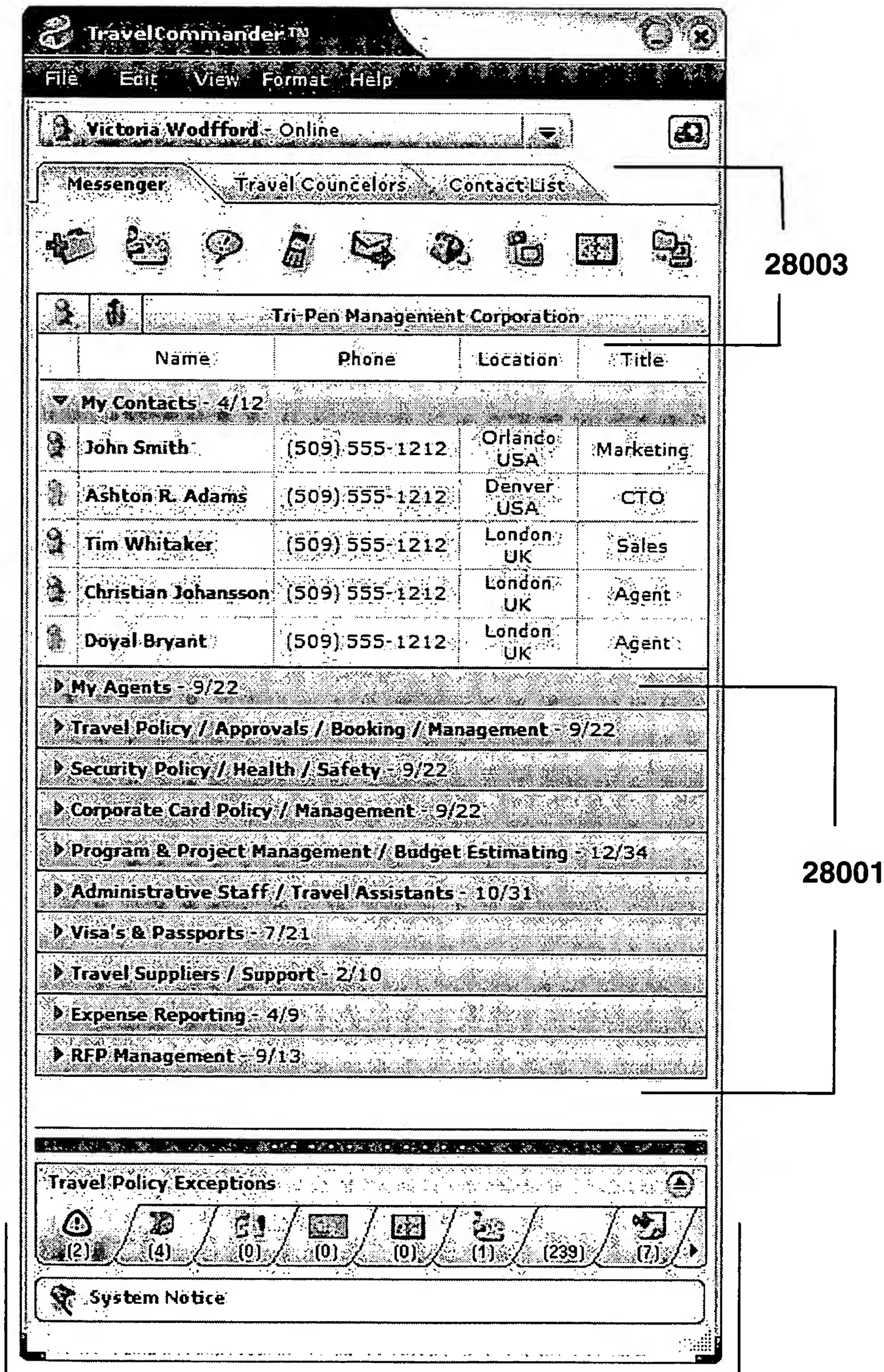

26000

# FIGURE 27




27001

# FIGURE 28


TravelCommander™
File Edit View Format Help
Victoria Wodfford - Online
Messenger
Travel Councelors
Contact List
Tri-Pen Management Corporation
Name
Phone
Location
Title
My Contacts - 4/12
John Smith
(509) 555-1212
Orlando USA
Marketing
Ashton R. Adams
(509) 555-1212
Denver USA
CTO
Tim Whitaker
(509) 555-1212
London UK
Sales
Christian Johansson
(509) 555-1212
London UK
Agent
Doyal Bryant
(509) 555-1212
London UK
Agent
My Agents - 9/22
Travel Policy / Approvals / Booking / Management - 9/22
Security Policy / Health / Safety - 9/22
Corporate Card Policy / Management - 9/22
Program & Project Management / Budget Estimating - 12/34
Administrative Staff / Travel Assistants - 10/31
Visa's & Passports - 7/21
Travel Suppliers / Support - 2/10
Expense Reporting - 4/9
RFP Management - 9/13
Travel Policy Exceptions
(2)
(4)
(0)
(0)
(0)
(1)
(239)
(7)
System Notice
28003
28001
28002

# Figure 29

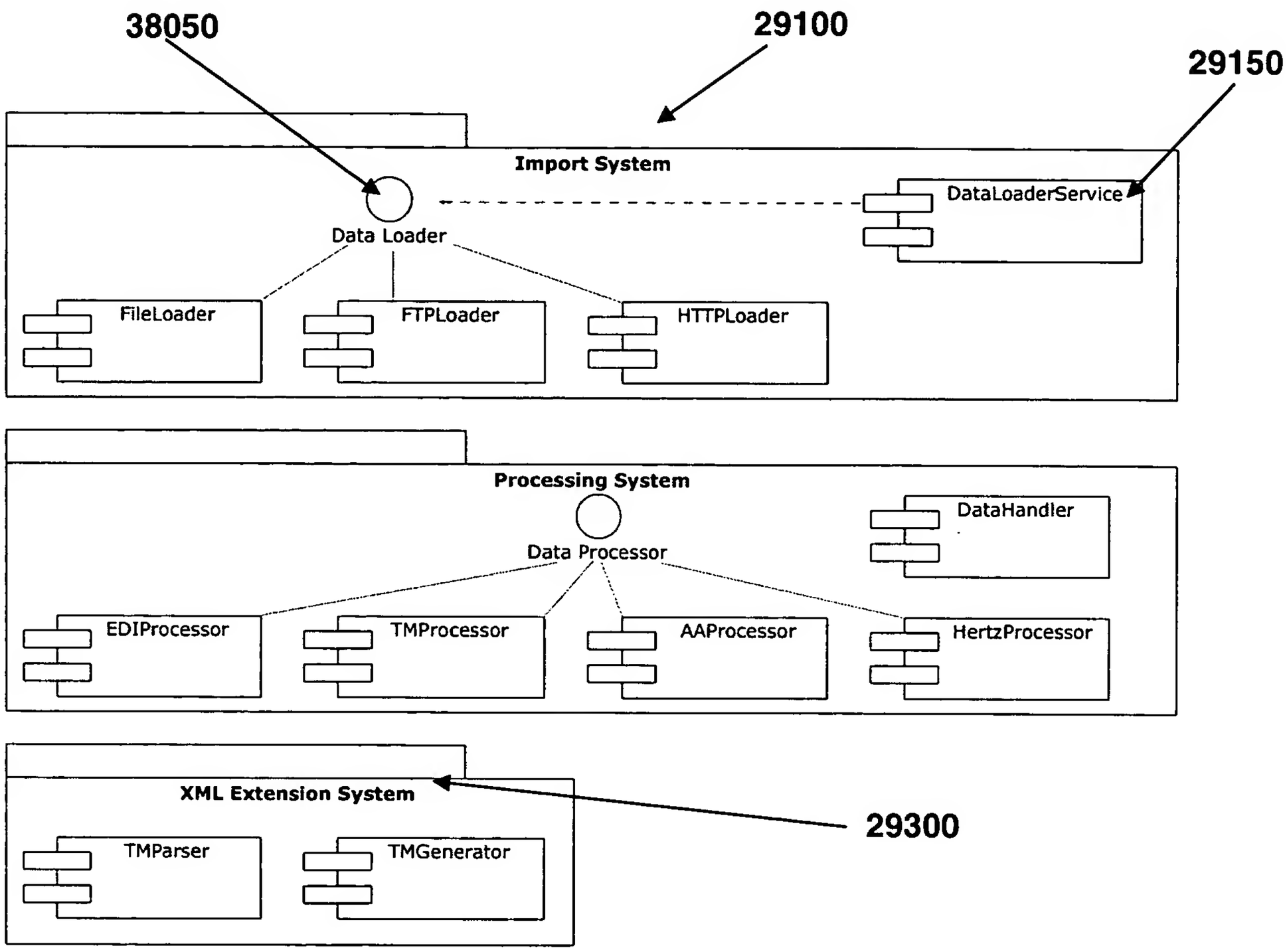
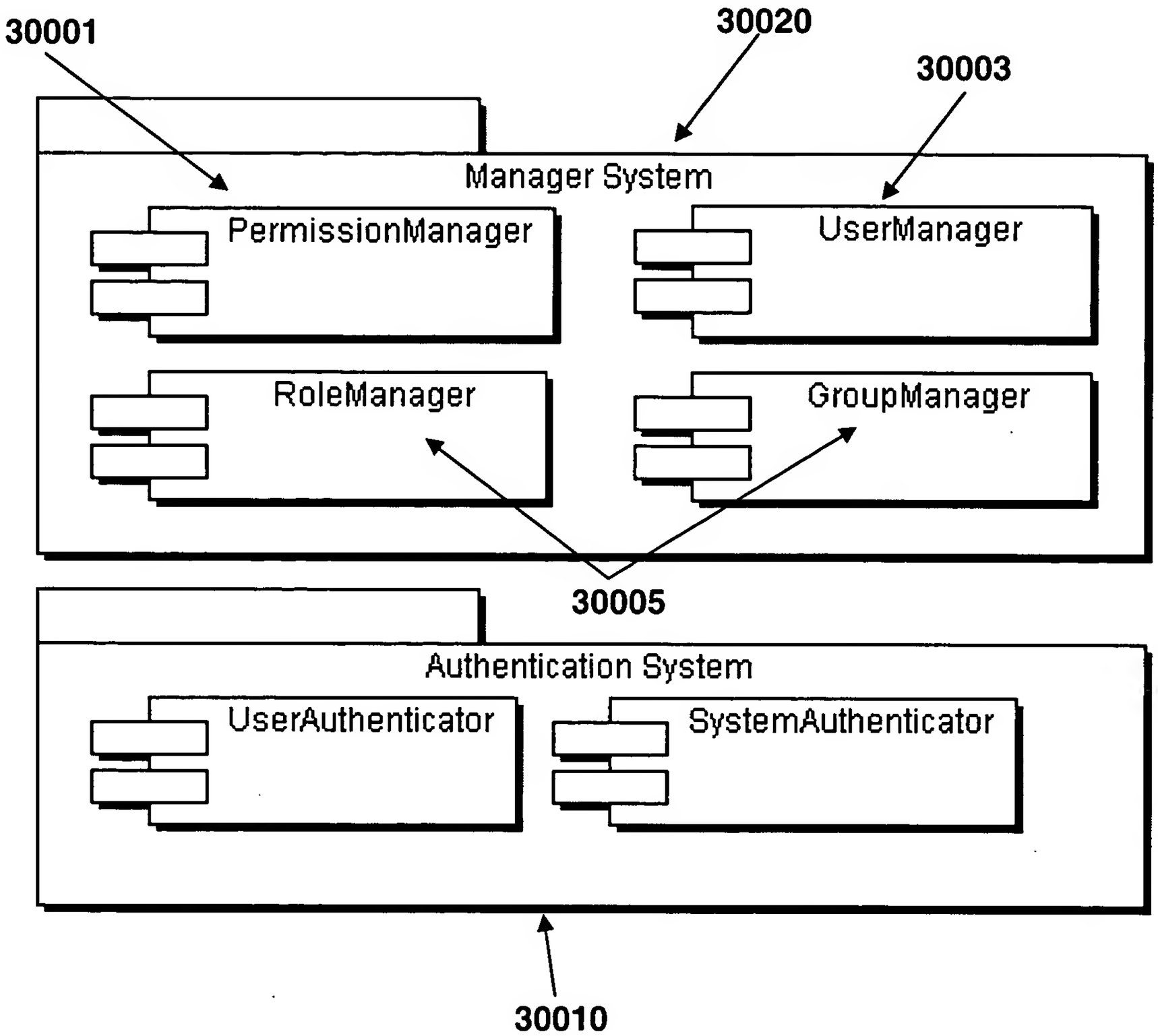
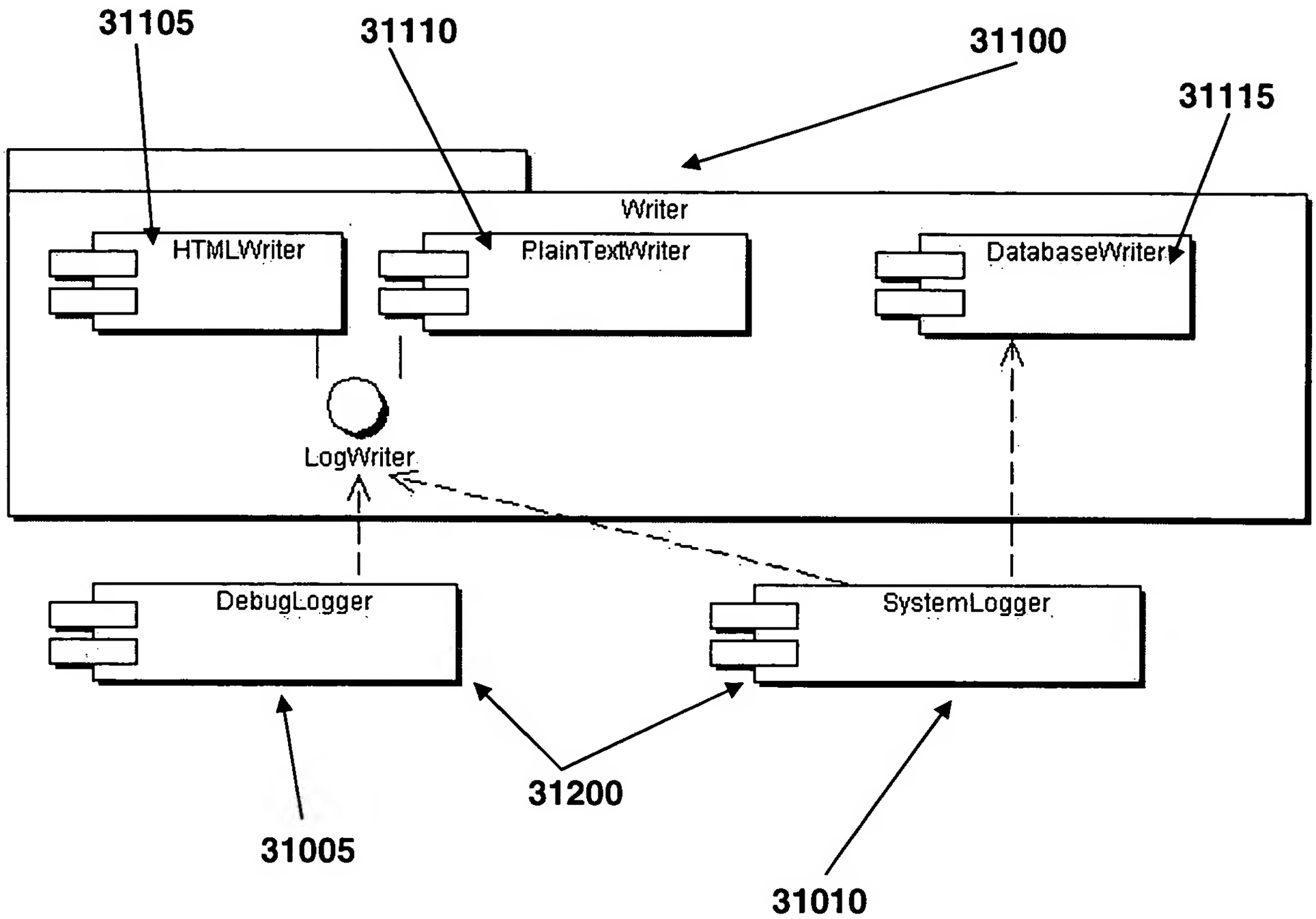

38050
29100
29150
Import System
Data Loader
DataLoaderService
FileLoader
FTPLoader
HTTPLoader
Processing System
Data Processor
DataHandler
EDIProcessor
TMProcessor
AAProcessor
HertzProcessor
XML Extension System
TMParser
TMGenerator
29300

Figure 30


30001
30020
30003
Manager System
PermissionManager
UserManager
RoleManager
GroupManager
30005
Authentication System
UserAuthenticator
SystemAuthenticator
30010

# Figure 31


31105
31110
31100
31115
Writer
HTMLWriter
PlainTextWriter
DatabaseWriter
LogWriter
DebugLogger
SystemLogger
31005
31200
31010

# Figure 32

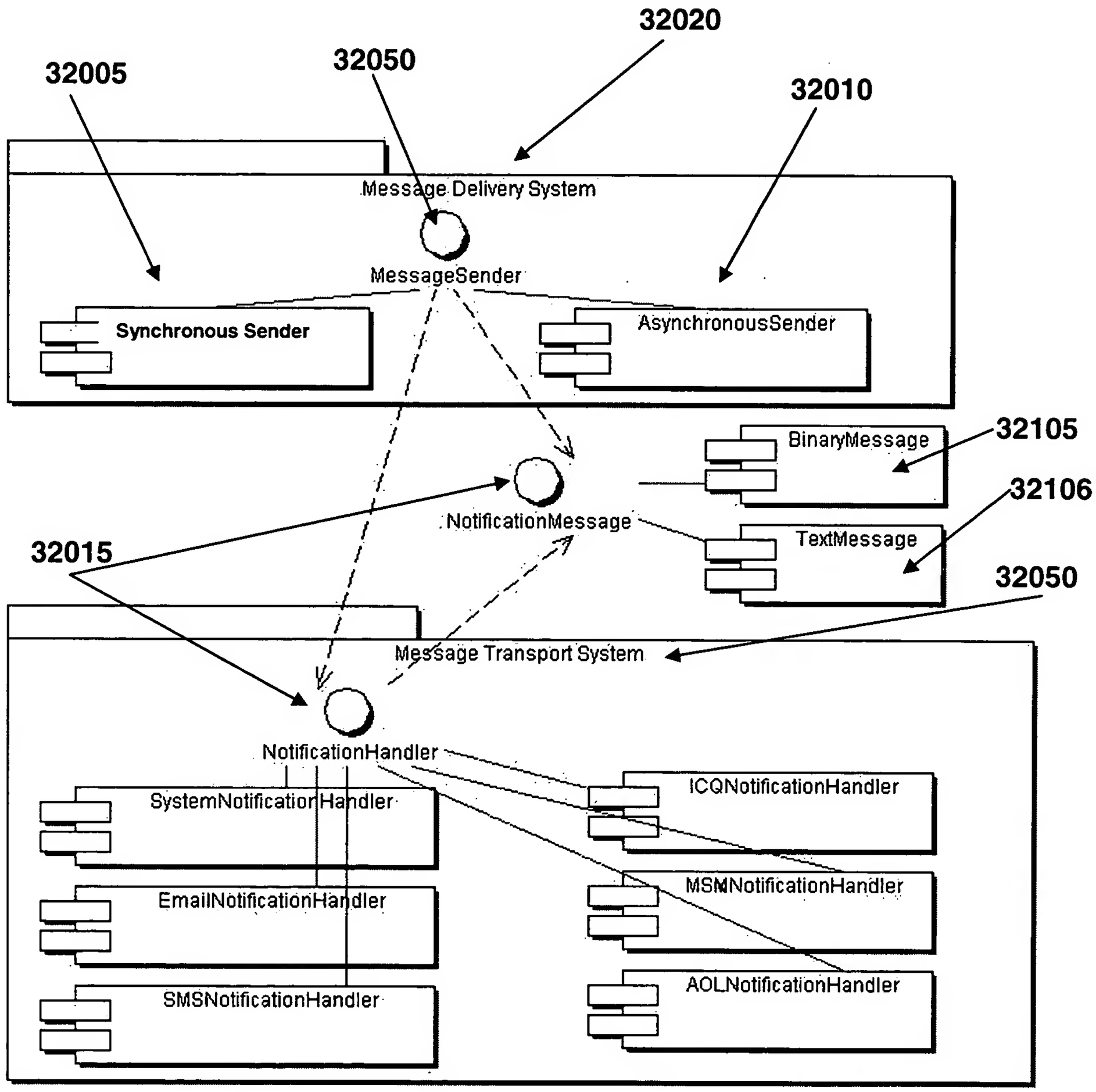
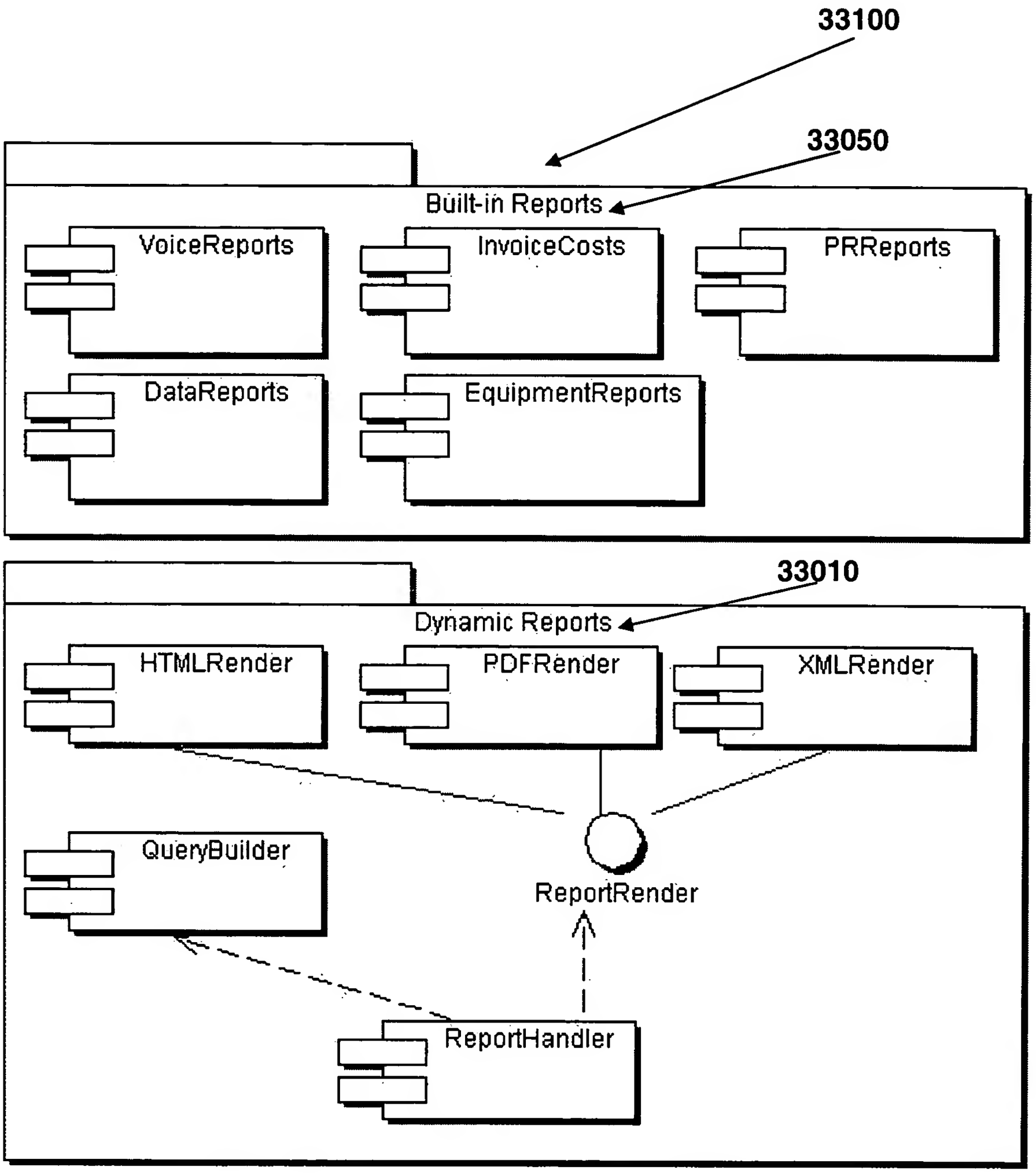
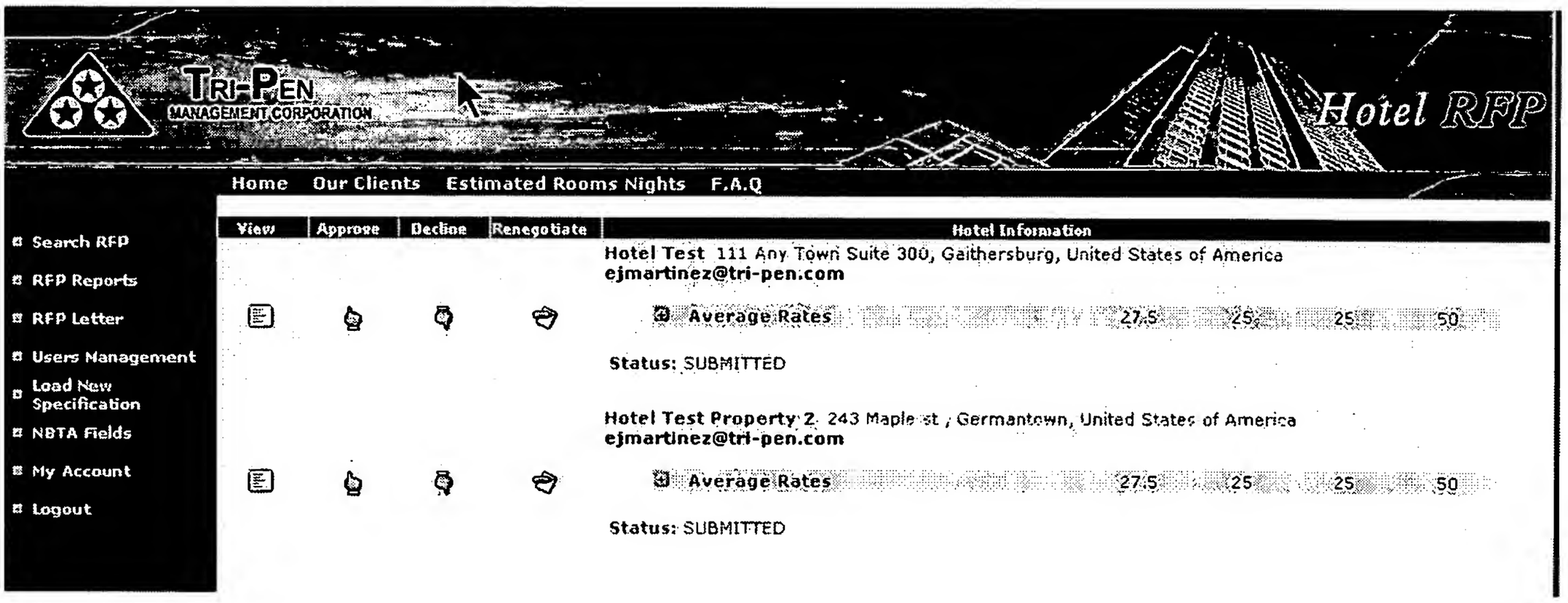

32020
32005
32050
32010
Message Delivery System
MessageSender
Synchronous Sender
AsynchronousSender
BinaryMessage
32105
32106
NotificationMessage
TextMessage
32015
32050
Message Transport System
NotificationHandler
SystemNotificationHandler
ICQNotificationHandler
EmailNotificationHandler
MSMNotificationHandler
SMSNotificationHandler
AOLNotificationHandler

**Figure 33**

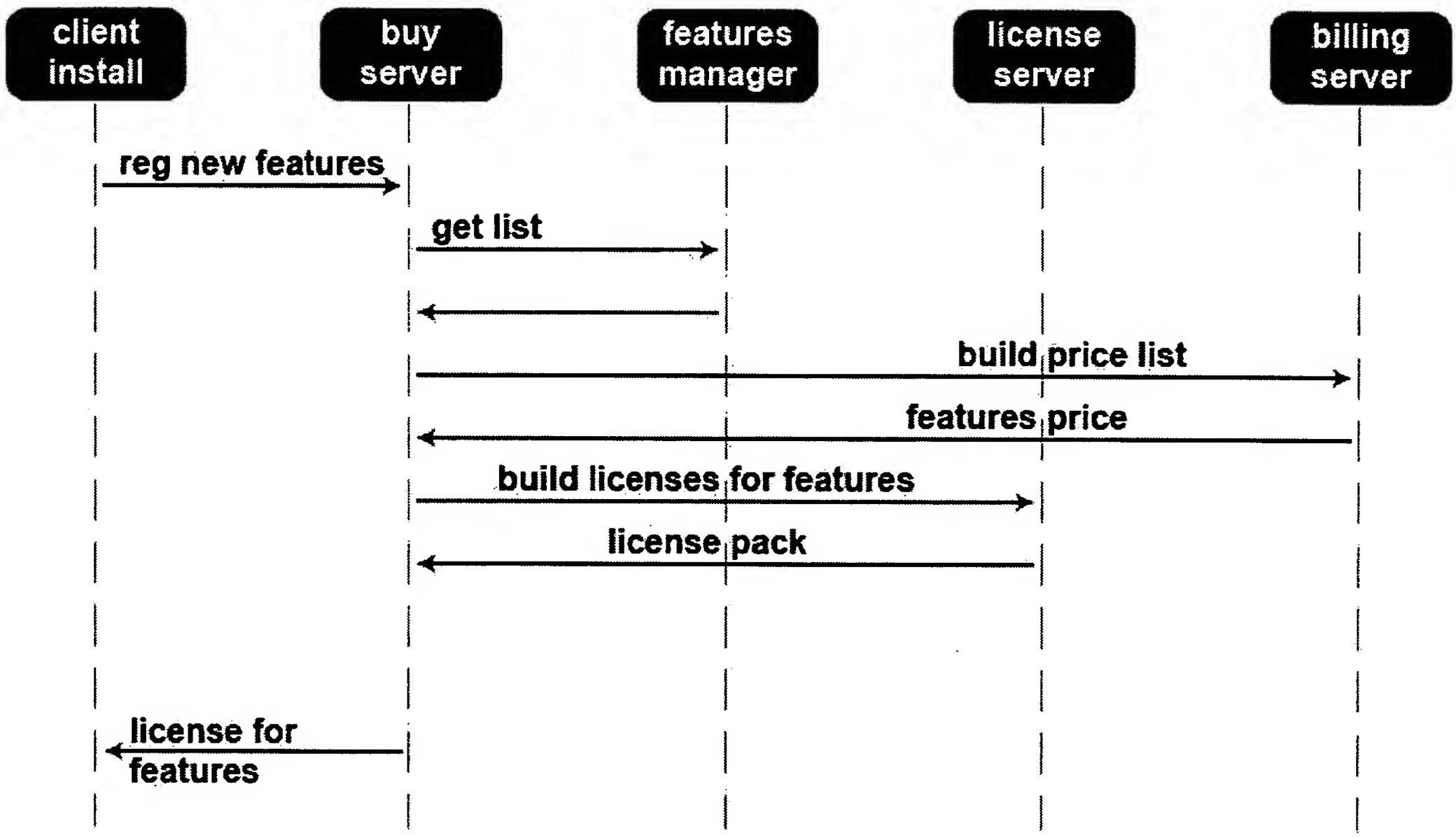

33100
33050
Built-in Reports
VoiceReports
InvoiceCosts
PRReports
DataReports
EquipmentReports
33010
Dynamic Reports
HTMLRender
PDFRender
XMLRender
QueryBuilder
ReportRender
ReportHandler

# Figure 34




34100

Figure 35


client install
buy server
features manager
license server
billing server
reg new features
get list
build price list
features price
build licenses for features
license pack
license for features

# Figure 36

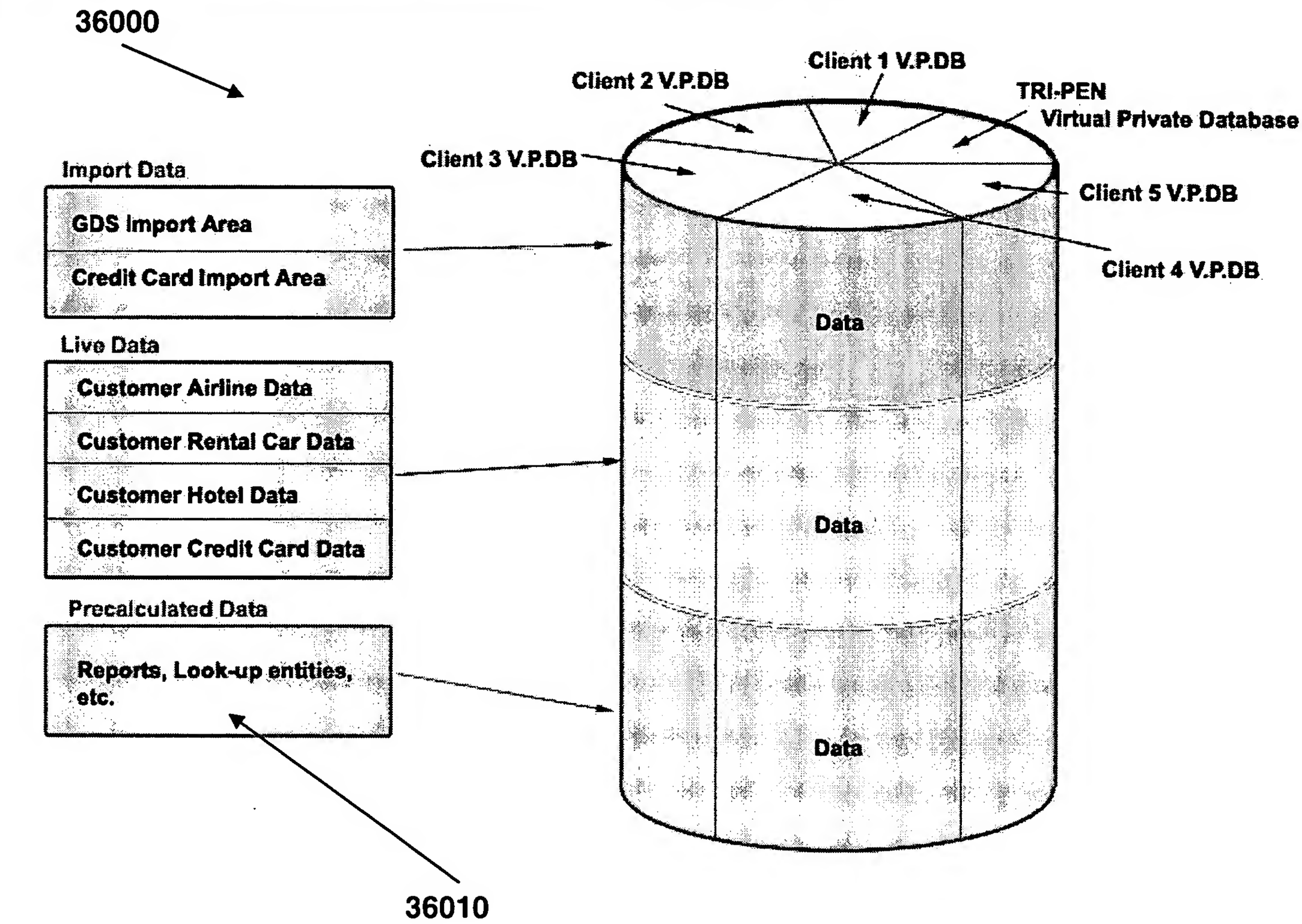

Database Diagram
36000
Import Data
GDS Import Area
Credit Card Import Area
Live Data
Customer Airline Data
Customer Rental Car Data
Customer Hotel Data
Customer Credit Card Data
Precalculated Data
Reports, Look-up entities, etc.
36010
Client 1 V.P.DB
Client 2 V.P.DB
TRI-PEN
Virtual Private Database
Client 3 V.P.DB
Client 5 V.P.DB
Client 4 V.P.DB
Data
Data
Data

Figure 37

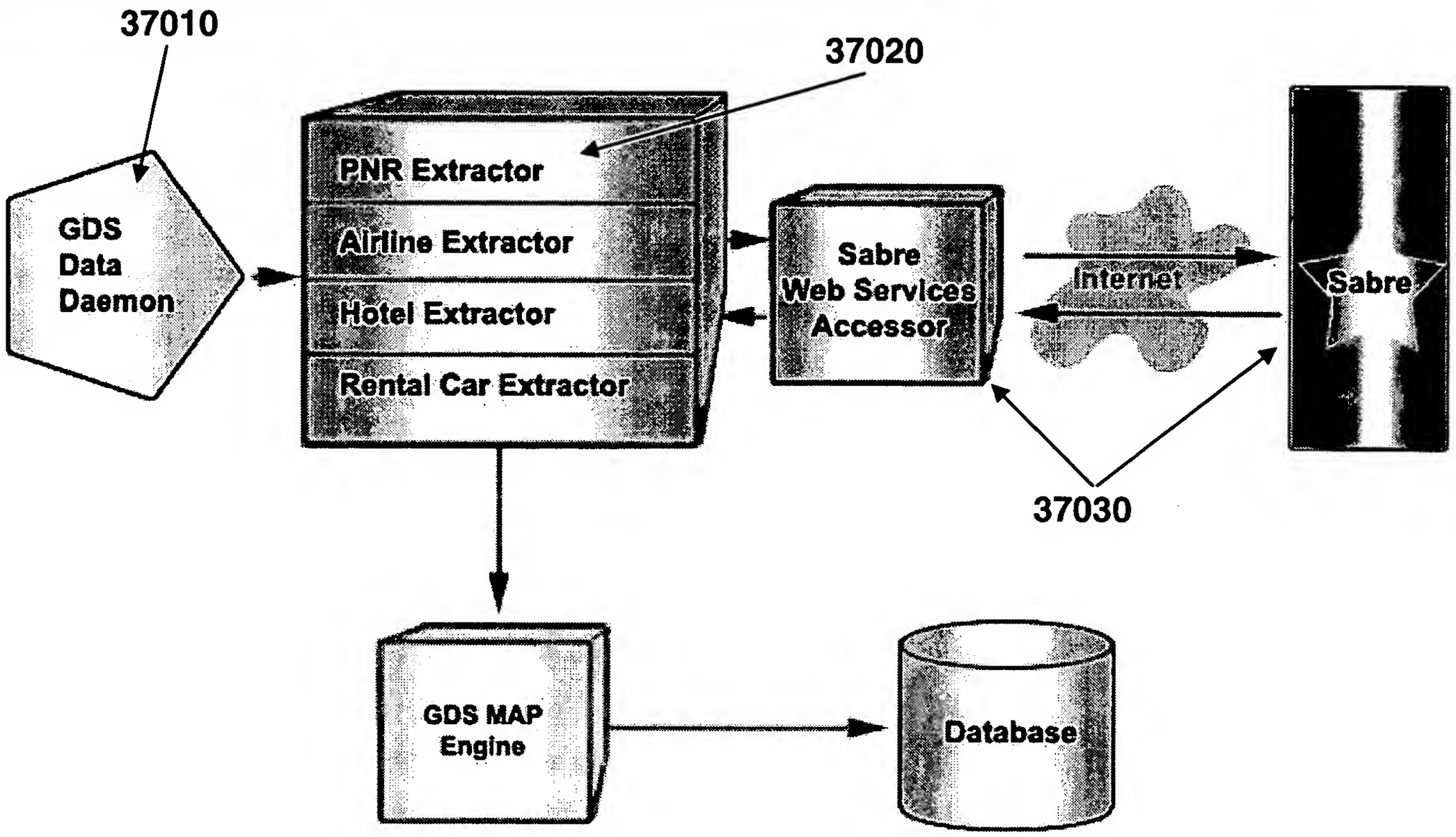

Pass Through of Direct Commands Within GDS
37010
37020
GDS
Data
Daemon
PNR Extractor
Airline Extractor
Hotel Extractor
Rental Car Extractor
Sabre
Web Services
Accessor
Internet
Sabre
37030
GDS MAP
Engine
Database

Figure 38

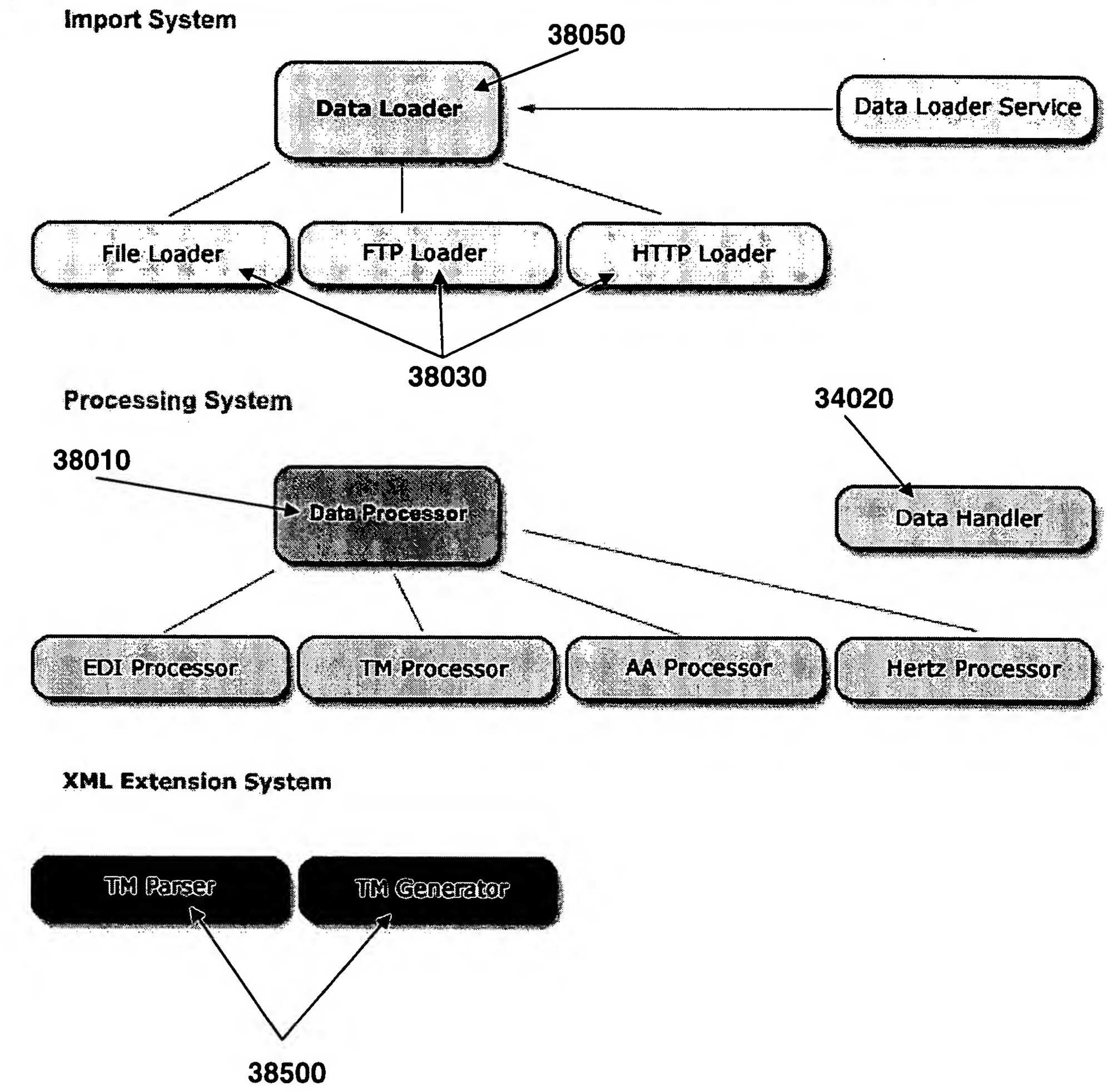

Import System / Processing System / XML Extension System
Import System
38050
Data Loader
Data Loader Service
File Loader
FTP Loader
HTTP Loader
38030
Processing System
34020
38010
Data Processor
Data Handler
EDI Processor
TM Processor
AA Processor
Hertz Processor
XML Extension System
TM Parser
TM Generator
38500

Figure 39

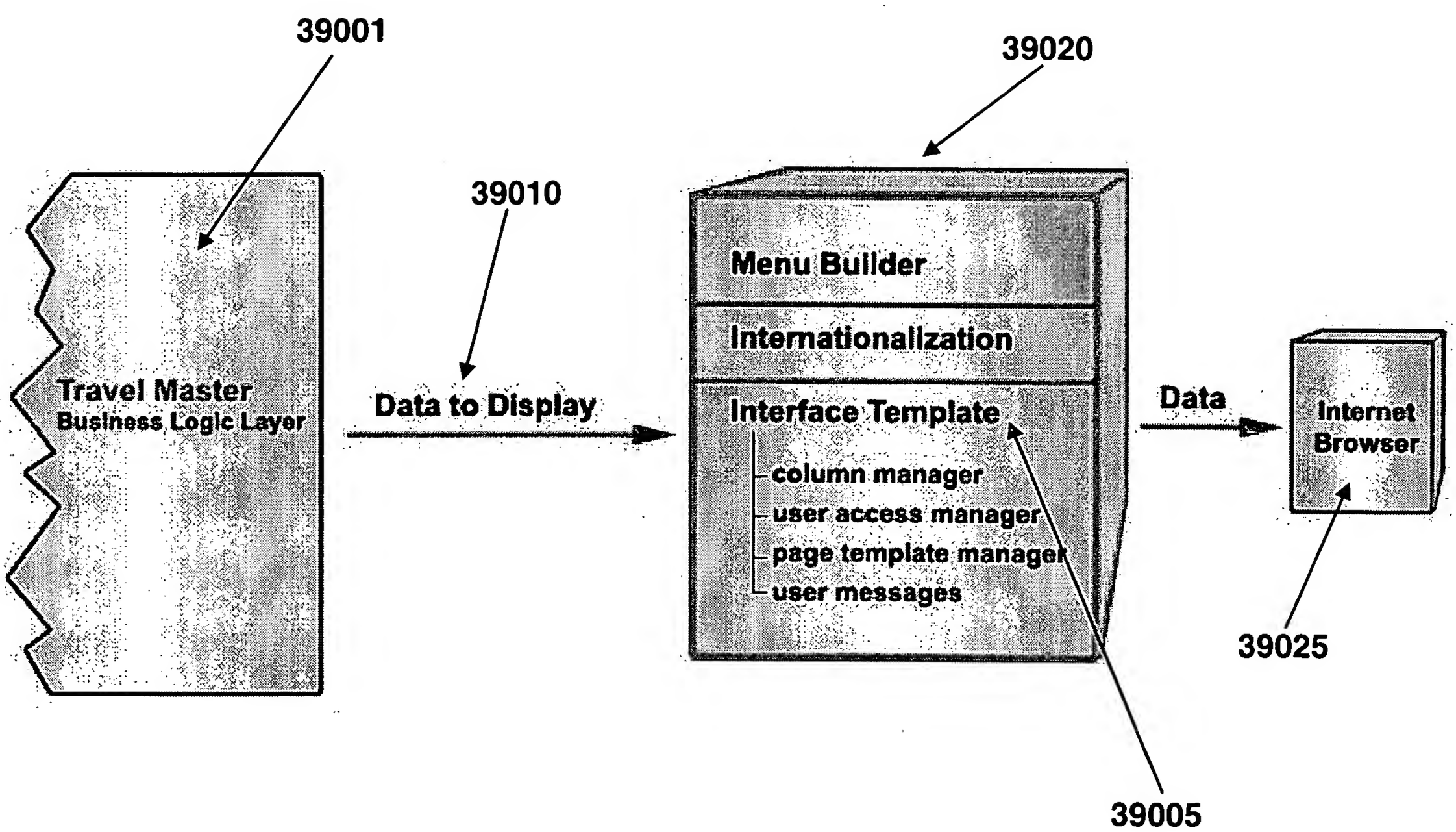
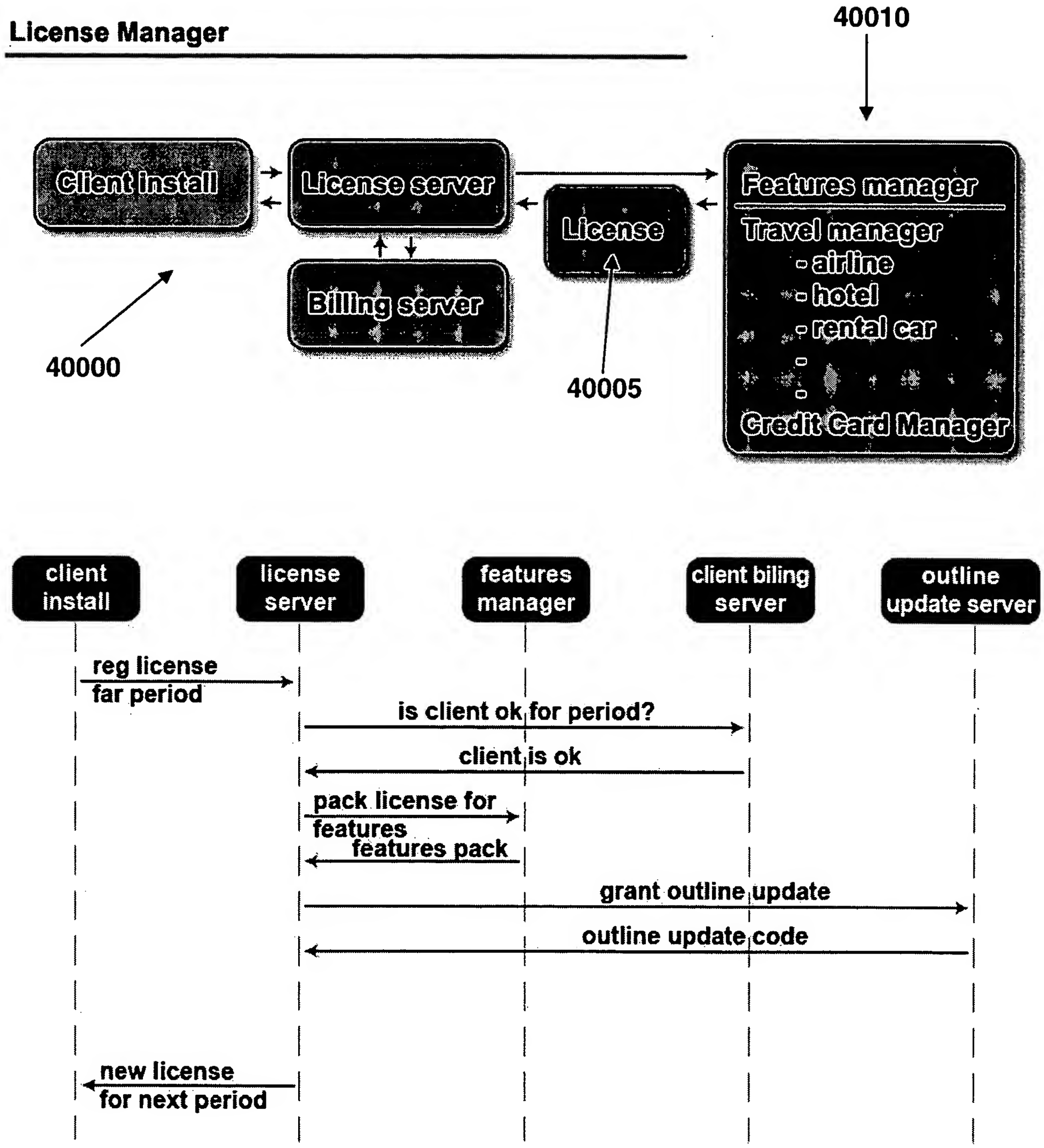
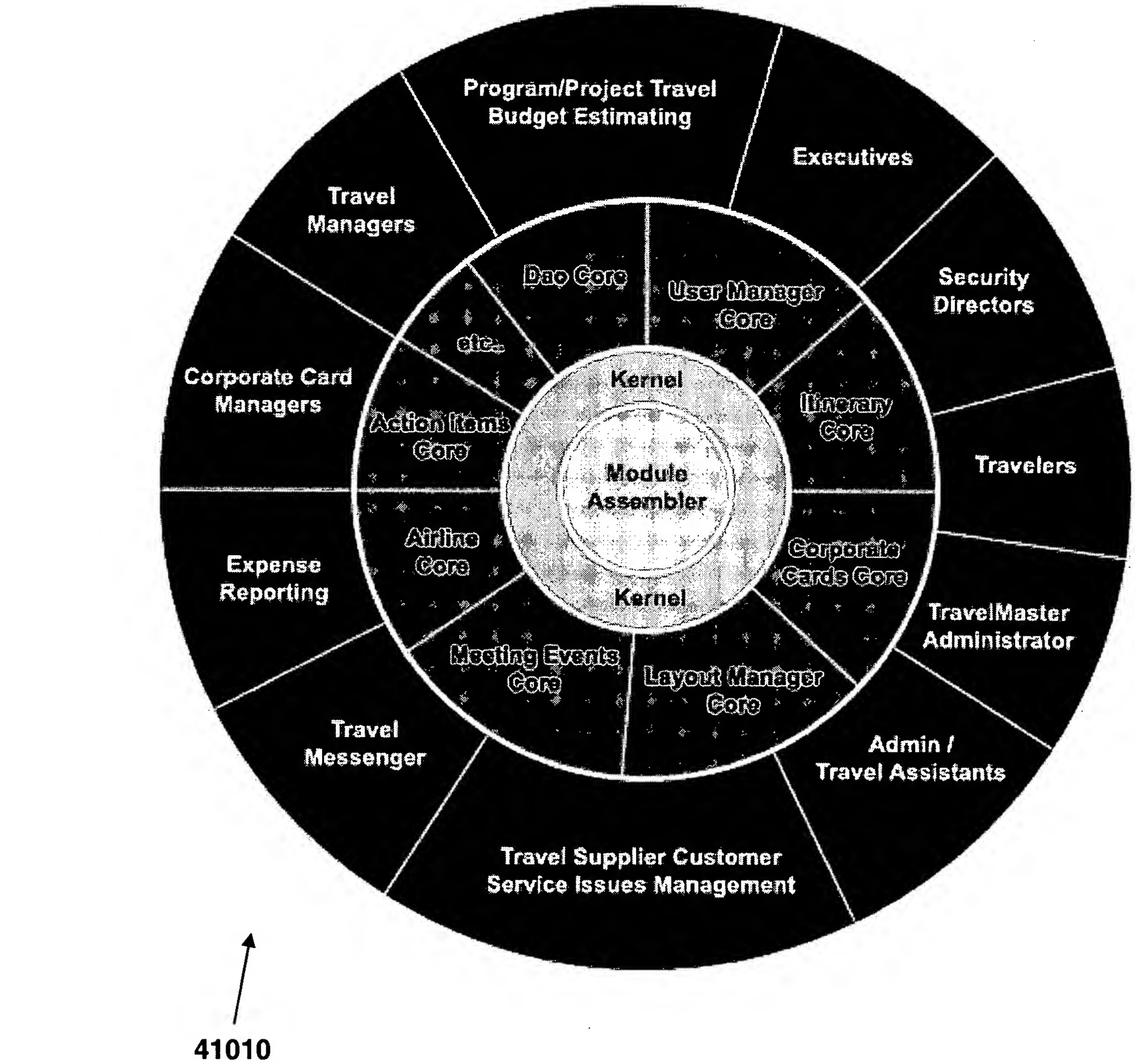

Layout Manager
39001
39020
39010
Travel Master
Business Logic Layer
Data to Display
Menu Builder
Internationalization
Interface Template
column manager
user access manager
page template manager
user messages
Data
Internet
Browser
39025
39005

Figure 40


License Manager
40010
Client install
License server
Billing server
License
Features manager
Travel manager
- airline
- hotel
- rental car
Credit Card Manager
40000
40005
client install
license server
features manager
client biling server
outline update server
reg license far period
is client ok for period?
client is ok
pack license for features
features pack
grant outline update
outline update code
new license for next period

# Figure 41


Plug In Manager
Program/Project Travel Budget Estimating
Executives
Travel Managers
Security Directors
Dao Core
User Manager Core
etc...
Kernel
Corporate Card Managers
Itinerary Core
Action Items Core
Module Assembler
Travelers
Airline Core
Corporate Cards Core
Expense Reporting
Kernel
TravelMaster Administrator
Meeting Events Core
Layout Manager Core
Travel Messenger
Admin / Travel Assistants
Travel Supplier Customer Service Issues Management
41010

# Figure 42

## Pre Travel Process

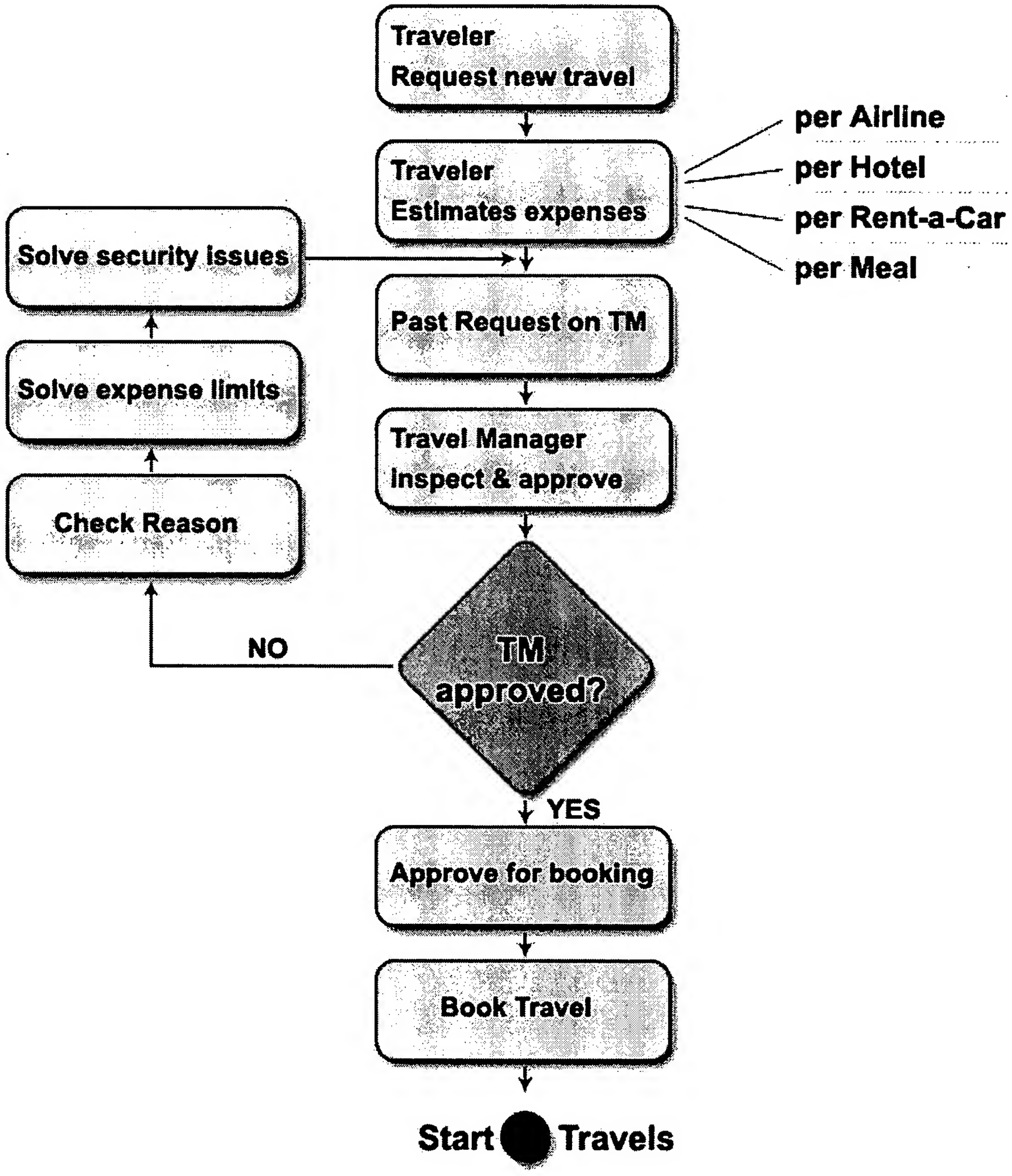
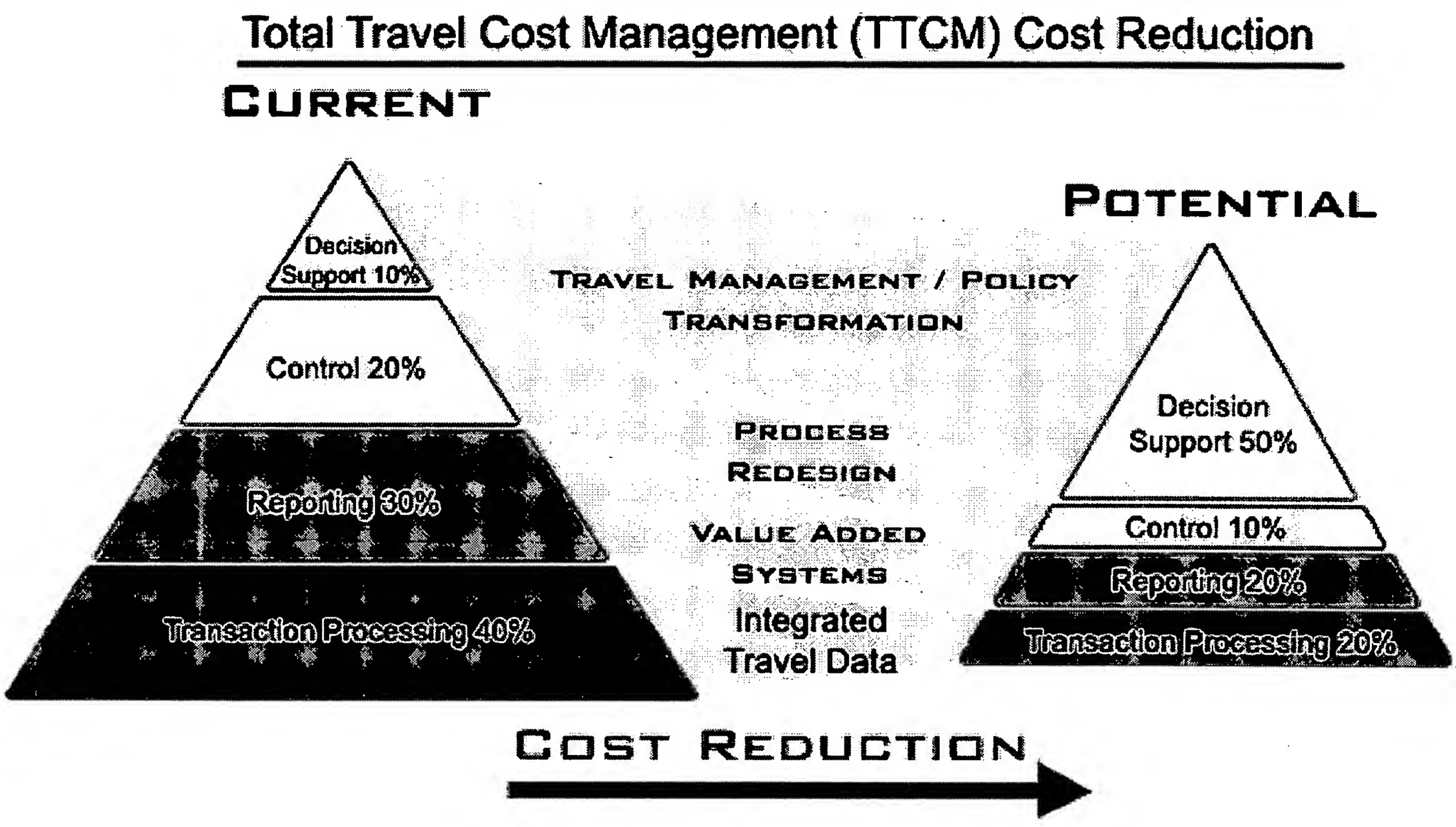
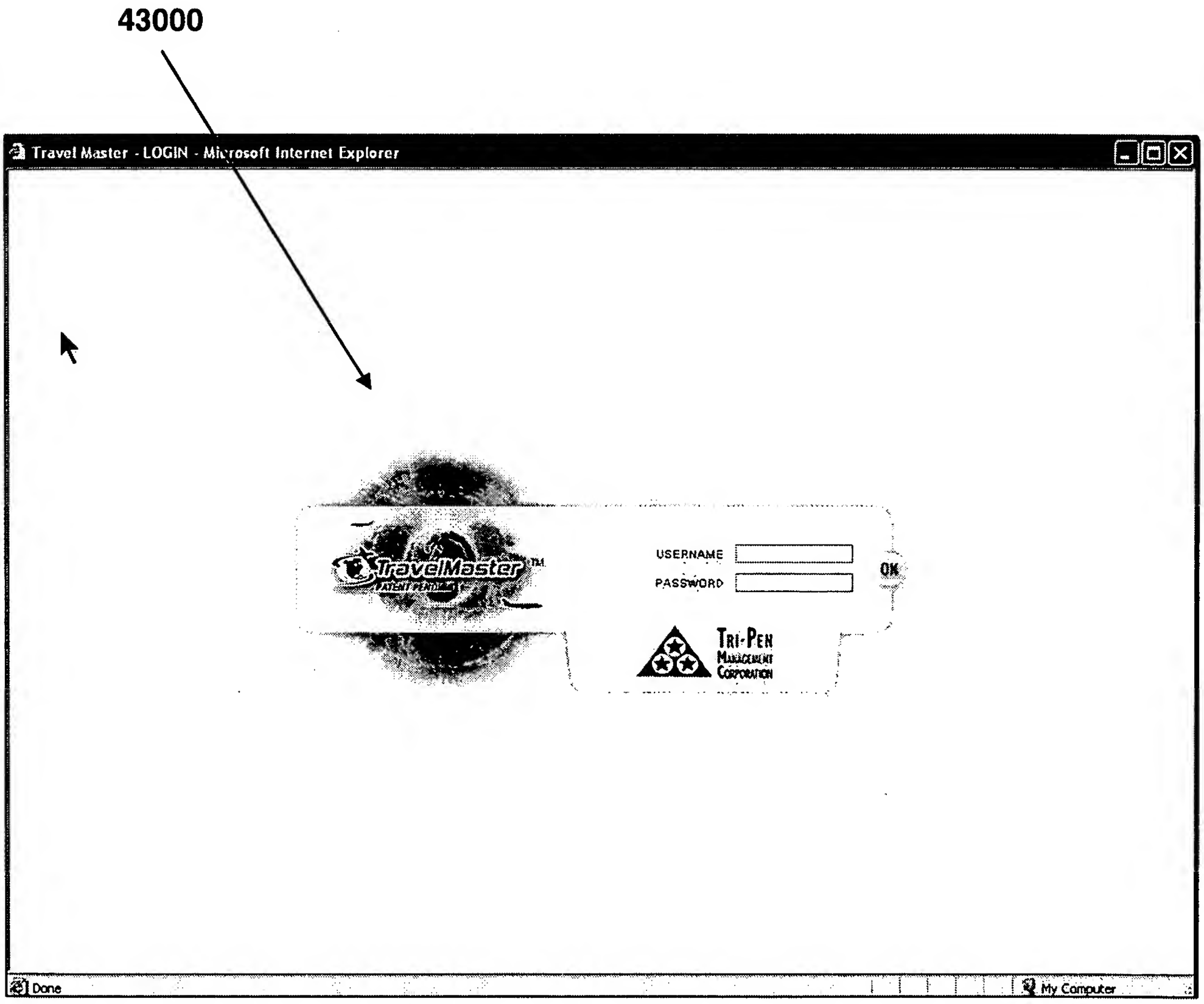


Figure 43


Total Travel Cost Management (TTCM) Cost Reduction
CURRENT
Decision Support 10%
Control 20%
Reporting 30%
Transaction Processing 40%
TRAVEL MANAGEMENT / POLICY TRANSFORMATION
PROCESS REDESIGN
VALUE ADDED SYSTEMS
Integrated Travel Data
POTENTIAL
Decision Support 50%
Control 10%
Reporting 20%
Transaction Processing 20%
COST REDUCTION

# Figure 44

## Web Based Portal Entry to the TravelMaster System